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The FitzPatrick Lectures
ON
MEDICINE, MAGIC, AND RELIGION.

Delivered before the Royal College of Physicians of London

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LECTURE I.

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MR. PRESIDENT AND GENTLEMEN,—Medicine, magic, and religion are abstract terms, each of which connotes a large group of social processes, processes by means of which mankind has come to regulate his behaviour towards the world around him. Among ourselves these three groups of process are more or less sharply marked off from one another. One has gone altogether into the background of our social life, while the other two form distinct social categories widely different from one another and having few elements in common. If we survey mankind widely this distinction and separation do not exist. There are many peoples among whom the three sets of social process are so closely inter-related that the disentanglement of each from the rest is difficult or impossible, while there are yet other peoples among whom the social processes to which we give the name of Medicine can hardly be said to exist, so closely is man's attitude towards disease identical with that which he adopts towards other classes of natural phenomena.

METHODS OF INQUIRY.

In any attempt to study a social institution there are three chief lines of approach and methods of inquiry. We may examine the institution historically, seeking to learn how it has been built up, how this advance has taken place here and that there; we may study the social conditions under which it has progressed in one place, been stationary in another, and degenerated in a third; and we may attempt to go back to its origin and ascertain the steps by which it has become differentiated from other institutions and has acquired an independent existence.

A second method is the psychological. We may attempt to study the states of mind, individual and collective, which underlie the acts, again individual and collective, the sum of which make up the institution in question.

The third method, which may be called the sociological method, is the inquiry into the relations of the social processes which we are attempting to study to other social processes in order to determine the interactions between the two.

Since the object of the FitzPatrick lectures is the study of the history of medicine, it might seem that the first of these three lines of inquiry should form their subject. This would certainly be so if medicine were everywhere the independent and self-contained institution which it is among ourselves, but if my opening statement is correct this is very far from being the case. A necessary preliminary to any knowledge of its history must be the study of its relations to those other social processes with which it is associated. This preliminary task will occupy us in these lectures, which will deal with certain prolegomena to the early history of medicine rather than with the history of medicine itself.

It would be quite impossible in the time assigned to these lectures to deal with the subject exhaustively. My object will be rather to consider lines of inquiry by which the subject may be studied, and for this purpose I shall limit myself as far as possible to one part of the world, viz., Melanesia and New Guinea, which have been especially the field of my own researches, with occasional references to the allied culture of Australia. The time has gone by in sociology when we tried to understand human institutions by comparing examples taken at random from every part of the world. The present trend in the science which deals with these matters is to limit inquiries to a series of related peoples. If we reach conclusions by means of such inquiries we can then proceed to see if they will apply in other parts of the world.

DEFINITION OF THE SOCIAL PROCESSES.

I must begin by defining the three kinds of social process which are to be the subject of our study. The distinction between magic and religion is one which has long tried the ingenuity of students of human society. Among many peoples, including those with whom these lectures will especially deal, it is far from easy to draw any definite line between the two, and we need a term which will include both. A word which is sometimes used in this sense in English is magico-religious, and, in default of a better, I shall use it occasionally in these lectures. The use of this word will imply a certain attitude towards the world. If the matter be looked at from our own point of view this attitude would be one in which phenomena are dealt with by supernatural means. I say if regarded from our point of view because, of course, the use of the word supernatural implies the existence of the concept of the natural, and it is just this concept, as we have it, which is lacking among the people with whom I shall deal in these lectures. The essence of medicine as we now understand it is that it regards disease as a phenomenon subject to natural laws, to be treated as we treat any other department of nature. The distinction between the attitude of the modern practitioner of medicine and the magico-religious attitude depends on the difference in the concept of disease in the two cases. One chief object of these lectures will be to discover what is the nature of the concept of disease among those who fail to distinguish medicine from magic and religion.

While the main topic of these lectures will thus be the nature of the concept of disease among certain peoples of rude culture, and the relation of this concept to those underlying magic and religion, it will be interesting to pay attention to the distinction between these two groups of social process. A full study of this distinction would take us too far from our main subject, and I must be content to use a provisional distinction which will be useful for descriptive purposes. When I speak of magic, I shall mean a group of processes in which man uses rites which depend for their efficacy on his own power or on powers believed to be inherent in, or the attributes of, certain objects and processes which are used in these rites. Religion, on the other hand, will comprise a group of processes the efficacy of which depends on the will of some higher power, some power

whose intervention is sought by rites of supplication and propitiation. Religion differs from magic in that it involves the belief in some power in the universe greater than that of man himself.

Magic and religion are thus differentiated from one another by their attitudes towards the means by which man seeks to influence the universe around him. Medicine, on the other hand, is a term for a set of social practices by which man seeks to direct and control a specific group of natural phenomena—viz., those especially affecting man himself, which so influence his behaviour as to unfit him for the normal accomplishment of his physical and social functions, phenomena which lower his vitality and tend towards death. By a process of generalisation society has come to classify these phenomena together and has distinguished them from other groups of natural phenomena under the name of disease. As I have already said, one of the chief tasks of these lectures will be to ascertain how far this notion of disease, this category of the morbid, exists among the peoples included in our field of study, and we shall do this mainly by means of an inquiry into the processes by which man reacts to those phenomena we call morbid.

CONCEPT OF DISEASE BY VARIOUS PEOPLES.

One way of approaching the problem will be to inquire how far different groups of mankind have set apart certain members of the community to deal with the morbid. When we have evidence of such division and specialisation of social functions, we shall have at the same time definite evidence that those who have reached this specialisation of function have also reached a stage of thought in which they separate morbid from other natural phenomena. One point of nomenclature may be considered here. In dealing with the subject of medicine from the comparative point of view and among peoples of rude culture, we are met by a difficulty arising out of the wealth of the English language in terms for practitioners of the healing art. When in these lectures I am to speak of those members of the community whose special business it is to deal with disease am I to call them doctors, medical men, medicine-men, physicians, or what? Medicine-men might seem the most appropriate of these in that it is not a term used of our own practitioners, and will thus carry with it no connotation derived from our civilisation. It suffers, however, from the disadvantage that it comes to be widely used in anthropological literature for sorcerers and dealers in various forms of magic who may have no dealings with the morbid, and certainly exercise no therapeutical activities. I propose, therefore, to use the old English term "leech." When I speak of a leech I shall mean a member of society whose special function it is to deal with the cure of disease. He may have other functions, such as the formation of rain, the promotion of vegetation, or even the production of disease itself, but in so far as he is dealing with the cure of disease he will be, in the nomenclature I shall use, a leech.

One of the methods, then, by which we may seek to ascertain how far different peoples of the world distinguish morbid from other natural phenomena is by inquiring how far they distinguish the leech from the sorcerer or the priest. The chief line of inquiry, however, will be an examination of the processes by which man at different stages of culture deals with disease. We shall find that even when there is no clear differentiation of the leech from other members of society mankind has theories of the causation of disease, carries out proceedings which correspond with those we call diagnosis and prognosis, and finally has modes of treatment which, even if they have little in common with our own remedies, nevertheless may be regarded as making up a definite system of therapeutics.

I have said that one of the chief objects of these lectures will be an attempt to discover the nature of the concept of disease held by different peoples. I must first say a word about what we mean when we speak of a people possessing and acting on such a concept. I do not mean such a clear concept as is held, say, by the writer of a European text-book of medicine, a concept capable of being expressed by the formula we call a definition. Such a concept is the result of a very advanced process of generalisation and abstraction, and we all know how difficult it is to frame such a definition, even with the large system of exact knowledge which we possess. It is evident that when we speak of the concept of disease held by such a people as the Melanesians we mean no exactly formulated definition, but a more or less vague system of ideas, which, though not distinctly formulated by a people, yet directs their behaviour—their reactions towards those features of the environment which we have classified together under the category of disease.

BELIEFS AS TO CAUSATION OF DISEASE.

One element of the concept of disease, and perhaps the most important, is that it includes within its scope the factor of causation. There are usually clear-cut ideas concerning the immediate conditions which lead to the appearance of disease. One happy result of this fact is that we are able to approach our subject by way of etiology, and are thus led to deal with the medicine of savage peoples from the same standpoint as that of modern medicine, which rests, or should rest, entirely upon the foundation of etiology. By starting from etiology we shall find ourselves led on as naturally to diagnosis and treatment, as is the case in our own system of medicine.

If we examine the beliefs of mankind in general concerning the causation of disease we find that the causes may be grouped in three chief classes: (1) human agency, in which it is believed that disease is directly due to action on the part of some human being; (2) the action of some spiritual or supernatural being or, more exactly, the action of some agent who is not human, but is yet more or less definitely personified; and (3) what we ordinarily call natural causes.

Among ourselves there are indications of the presence of all three kinds of belief, and this was certainly so in the not very remote past. We now only think of human agency in cases of poison and injury, and then only as the means by which the action of natural causes has been directed. The second category still exists in the "hand of God" of our statutes and in the oral rites of our religion, but has ceased to take any part in orthodox medicine, though it still plays some part in the behaviour of the laity towards disease. In the professional art of medicine and in the practice of the majority of the laity the attitude towards disease is directed by the belief in its production by natural causes, meaning by this a body of beliefs according to which disease comes into being as the inevitable result of changes in our environment quite independent of human or superhuman agency.

If, on the other hand, we examine the culture of any savage or barbarous people we find that their beliefs concerning the causation of disease fall in the main into one or other or both of the first two categories, while in many cases the third category can hardly be said to exist, and even then we cannot assign the beliefs to the category of natural causation. I shall deal with these cases more fully in the second lecture. For the present I shall confine my attention to those cases in which the native ideas concerning causation bring them within the realm of magic or religion. In this first lecture I shall deal with cases which must either be definitely classed with magic or belong more nearly to this category than to that of religion.

It would greatly simplify the treatment of our subject if the line of cleavage between the cases of the causation of disease by human and non-human agency corresponded with the distinction between magic and religion. When writing these lectures I was at one time inclined to throw the distinction between magic and religion on one side and describe the facts with which I shall have to deal under the headings of human and non-human agency. Such a plan, however, would only have avoided a difficulty which it is better to face, for if we treat medicine from the sociological standpoint we must study it in relation to other recognised social processes. Unless we are prepared to throw the categories of magic and religion aside altogether, they cannot be ignored in any discussion of the social relations of medicine.

DISEASE OR INJURY ASCRIBED TO MAGIC.

The concept of magic which at present holds good in sociology and ethnology is largely influenced by the art called by this name in our own Middle Ages. The best known form of mediæval magic was one in which non-human, spiritual agents took a most important part. These beings acted as the immediate producers of disease and other effects, the magical character of the proceedings resting on the belief that the non-human agents had come in one way or another under the power of the human magician.

The magic of many peoples of rude culture, including those of the area with which I shall especially deal, differs widely from this in that disease or injury is in many cases ascribed to purely human agency, even when to us the real cause of the condition would seem to be obvious. This mode of causation is not merely brought into play to explain cases of illness which have no obvious antecedent, but also those in which what we should call the natural cause is obvious. Thus, if a man is killed or injured by falling from a tree in the Island of Ambrim in the New Hebrides, the fall is not ascribed to a loose branch or to some failure of coördination of the movements of the climber, but the accident, as we loosely call it, is put to the account of a sorcerer. It is probable that the sequence of ideas in the Melanesian mind is that in a business so familiar as that of climbing trees accidents would not happen unless someone had interfered with the normal course of events. If a sorcerer had not loosened a branch or produced an illusion whereby the victim had seen a branch where there was none, he would not have fallen to the ground.

Similarly, death or injury in battle is not ascribed to the superior skill of the enemy or to a failure of defence, but it is believed that a sorcerer has directed the missile of the assailant or has interfered with the defensive motions of the victim or the integrity of his weapons. A case of snake-bite is not ascribed to the act which, according to our ideas, is natural to a venomous animal, but it is believed that the snake has been put in the path of the victim by a sorcerer, or has been endowed with special powers by a sorcerer, or it may even be held that the animal which has bitten the victim is no ordinary snake, but the sorcerer himself in snake-like form.

To those whose main category of the causation of disease is human agency there is a firmly rooted belief in this mode of production, not only where causation would otherwise be mysterious or unknown, but also in those cases where the cause would seem, even to the most uninstructed lay mind in our own community, to lie within the province we call natural. It may be noted, moreover, that such ideas concerning the causation of disease are not empty beliefs devoid of practical consequences, but act as the motives for processes of treatment in case of injury or for acts of revenge if the magical process should lead to the death of the victim. If we were so to define magic as to identify it with the exclusive action of human beings, this part of our subject could soon be treated. The art of diagnosis would consist in the discovery of the human agent and the essential element in the treatment would be the use of measures which would lead the sorcerer to put an end to the actions by which he is effecting his maleficent purpose.

In addition to these cases of purely human agency there are many others in which our records tell us explicitly of conditions closely similar to those of our own Middle Ages in which the immediate cause of the disease is the action of some non-human being who is either under the control of human agency from the beginning or is capable of being brought under such control when it is desired to influence the results produced by its action. In such cases the methods of diagnosis and treatment are often indistinguishable from those employed where the morbid condition is ascribed to direct human agency. Disease or injury believed to be produced by spiritual agency is treated without any element of those processes of supplication and propitiation as would be necessary to bring them within the scope of our definition of religion.

In those cases in which a leech acts through the intermediation of non-human beings our records often leave us in doubt whether the curative actions should be regarded as magical or religious. A decision on this question can only be reached through an exact knowledge of the rites, manual and verbal, by which the leech effects his purpose, and it is only rarely that field-workers record these, being too often content to base their opinions on inferences contaminated by ideas derived from their own sphere of knowledge and interest.

My own opinion—it is nothing more than an opinion—is that as our exact knowledge of the leechcraft of different parts of the world increases, we shall find that the religious element in medical rites has been underestimated, or even ignored where it exists. At any moment, however, in the history of a science we must base our arguments upon the recorded facts, and in the account which I shall give my object will be to illustrate the difficulties and uncertainties of the subject rather than lay down any definite conclusions.

The cases I shall consider in this lecture are those in which it is believed that disease is directly due to human agency, and those in which on the available evidence it would seem that the methods of diagnosis and treatment depend on power believed to be inherent in the leech and his rites, or become effective through the intermediation of non-human beings who need no definite rites of propitiation and supplication to

persuade them to intervene in the curative process. In considering these cases it will be useful to distinguish certain classes according to the nature of the process by which it is believed that disease can be produced, the method of treatment being as a rule such as would follow from the nature of the cause.

Three main classes may be distinguished: (1) Those in which some morbific object or substance is projected into the body of the victim; (2) those in which something is abstracted from the body; and (3) those in which the sorcerer acts on some part of the body of a person or on some object which has been connected with the body of a person in the belief that thereby he can act on the person as a whole. These three classes will now be considered in detail.

Disease ascribed to Object or Influence Projected into Victim's Body.

The class of cases in which the cause of disease is supposed to be some object or substance which has been projected into the body of the victim fall into two groups according as the morbific objects have found their way into the body of the victim by direct human agency or by the action of some non-human agent. Both kinds are of frequent occurrence in Australia, where material objects such as stones, crystals, fragments of bone, or leaves are believed to be projected into the body, in some cases by sorcerers and in other cases by spiritual beings who thus punish intrusion into their sacred haunts or other offence. Disease is also produced in this manner among the Massim of New Guinea.[1]

In Melanesia this mode of production of disease by the projection of material objects into the body seems to be exceptional. Where disease is believed to be due to such projection it is usually held that some invisible influence has been projected into the body, and even where some material substance has been introduced, it is not supposed that the object itself produces the disease, which is ascribed rather to some morbific essence or effluvium, of which the material object is but the carrier and visible sign.

A good example of such a mode of production of disease which occurs in more than one part of Melanesia is by means of an instrument called in the Banks Islands *tamatetikwa*, or ghost-shooter. A mixture of leaves, a dead man's bone, and other ingredients are placed in a slender bamboo which the sorcerer holds in his hands with the thumb over the open end till he sees his enemy, when the removal of the thumb allows the evil influence to reach the victim. Dr. R. H. Codrington has recorded[2] some dramatic cases in which this method was employed which very well illustrate the profound belief in its efficacy. By means of suggestion the ghost-shooter will kill a powerful and healthy man in a couple of days. A less direct procedure customary in the Banks Islands, and there called *talamatai*, is to wrap a parcel consisting of a dead man's bone, or part of an arrow which has killed a man, in leaves and place it on the path over which the person whom it is desired to injure will shortly pass. The magical principle will spring out of the bundle and pass into the body of the victim.

In cases of illness thus caused by the introduction of morbific objects or essences into the body of the patient the treatment follows directly from the etiology, its aim being to extract the object or essence from the body, and thus remove the cause of the disease. For this purpose it is not always or even usually necessary to discover the agent by whom the objects have been introduced. In communities which ascribe disease to this cause there are men and women who are believed to have the power of removing objects, usually by sucking some part of the body, after which a stone, crystal, or other object is shown to the patient as having been removed by the process. Since in many such cases the disease has been produced by a suggestion set in action by the knowledge of some cause of offence to one believed to have the power of producing disease in this way, the sight of the object thus said to have been removed effects a rapid cure in removing the suggestion. In some cases, and especially in those in which the projected substance is of an immaterial kind, it may be necessary to discover the agent who alone can remove what has been implanted in the body, and in this case some method of divination is usually employed to discover by whom the disease has been produced.

[1] C. G. Seligmann: The Melanesians of British New Guinea, Cambridge, 1910.

[2] The Melanesians, London, 1891, p. 205.

Disease Attributed to Abstraction of Part of Body or Soul.

The second mode of production of disease is that in which it is believed that something is abstracted from the body. Examples of this occur in Australia, where the abstraction of the kidney fat, or, perhaps more correctly, of the fat of the omentum, forms one of the most widely held beliefs. In New Guinea and Melanesia this belief does not, so far as we know, exist, but in many parts of these regions the people believe in the causation of disease by the abstraction of the soul or of some part of it. The Melanesian examples of this process are all, so far as we know, due to spiritual agency.

Thus, in the Banks Islands the *atai* or soul may be taken from a man by one of the spirits called *rui*. The treatment consists in the recovery of the soul by one called *gismana* whose *atai* leaves his body in sleep and seeks out the soul of the patient.[3]

Another example of which we have a full record[4] comes from the Gazelle Peninsula of New Britain and Duke of York Island, where it is believed that disease is produced by one of a group of beings called *kaia* which have the body or tail of a snake and the head of a man. The *kaia* usually acts in this way on one who has intruded on its haunts or taken fruit without proper authorisation from trees in the district it inhabits.

If anyone falls ill in these places the people resort to a process of divination to determine whether the disease is due to the action of a *kaia* or has arisen in some other way. The diviner places under his arm-pit a piece of shell-money enclosed in a lime-strewn banana leaf and falls into a sleep in which he learns not only how the disease has been produced, but, if it is due to a *kaia*, he is able to tell the nature of the fault which has incurred the anger of the half snake half human being. The diviner who also acts as a leech then proceeds to carry out his treatment.

In the Duke of York Island, lying between the northern end of New Britain and the southern end of New Ireland, this treatment is as follows: The leech sprinkles lime on a dracæna leaf, enfolds it in a leaf of another kind, and places the packet so formed on a fire until it is almost carbonised. The patient then stands with raised arms and the leech passes the hot packet over his body with movements resembling the curves of the body of a snake, while the patient stamps on the ground so as to shake off the influence of the *kaia*. Then the leech opens the packet and takes therefrom a pinch of lime over which he incants the following formula:—

"Lime of exorcism. I banish the octopus; I banish the *teo* snake; I banish the spirit of the *Ingiet*[5]; I banish the crab; I banish the water-snake; I banish the *baliro* snake; I banish the python; I banish the *kaia* dog.[6]

[3] W. H. R. Rivers: History of Melanesian Society, Cambridge, 1914, vol. i., p. 165.

[4] J. Meier: Anthropos, vol. iii. (1908), p. 1005.

[5] A secret society.

[6] A special kind of dog, unlike the existing dog of New Britain, which forms one of the companions or familiars of the *kaia*. The other animals mentioned in the formula are also familiars of the *kaia*.

Lime of exorcism. I banish the slimy fluid; I banish the *kete* creeping-plant; I banish To Pilana; I banish To Wuwu-Tawur; I banish Tumbal. One has sunk them right down deep in the sea. Vapour shall arise to hold them afar; clouds shall arise to hold them afar; night shall reign to hold them afar; darkness shall reign to hold them afar; they shall betake themselves to the depths of the sea."

This is a literal translation of the original; Father Meier gives the following as the expression of its full meaning:—

"This is lime for exorcism with which I drive away the octopus, the different kinds of snake, the spirit of the *Ingiet* and the *kaia* dog. This is the lime with which I drive away the slime of the *kaia* pool, the creeping-plant called *kete*, and the *kaia* called To Pilana, To Wuwu-Tawur, and Tumbal. I have sunk them and they are now below in the deepest depths of the sea. Thick vapour, impenetrable cloud, dark night and black darkness shall surround them and block their way for ever to the upper world so that they shall remain for ever in the infinite abyss of the sea."

When the formula is finished the leech blows the lime over the patient and more lime is smeared on his body, especially in the epigastric region, on the arms near the shoulders, and on the ears and great toes. The packet is then thrown away and the upper part of a coconut three-quarters ripe is husked with the teeth and a hole bored in the shell round which red ochre is smeared. The leech then rubs in his hands a bloom of a species of mint, puts the fragments in the nut, and utters the following formula over the nut to act upon its milk.

"The coconut of exorcism. I banish the slime of the *kaia*; I banish the slime of the crab; I banish every pool with yellow slime; away with every swarm of *teo*-snakes; away with the spittle of the *teo*-snake; away with To Wuwu-Tawur; away with all the sap of the *kete* creeper; away with every *alai-pukai* creeper; away with all red-brown water.[7]

I banish every water of the *kaia*; away with every octopus; away with all the blood of the tree-snake.

I banish every puffed-up belly; I banish every dried-up shrub and grass; I will fetch his soul again from the hollow[8] of the *kaia*."

The leech then bespatters the patient with saliva, gives him the coconut to drink, takes his fee, and goes.

This production of disease by the *kaia* comes in several respects very near the domain of religion, but I have included an account of the proceedings connected with it in this lecture because the treatment bears no evidence whatever of any appeal to, or propitiation of, higher powers. The attitude towards the *kaia* itself is evidently that of the exorcist acting on a being who is believed to be capable of control by the leech through his knowledge of the proper rites, manual and verbal. It is, of course, possible that behind the whole proceedings there may be the idea of appeal to some higher power of which the formulas provide no evidence; but we can only act on the evidence before us, and this shows no trace of any such idea. We have here an example of social activity which we must provisionally label as magic, but of a magic which differs fundamentally from that of the Australian or inhabitant of Torres Straits, a magic which approaches in its general character, as well as in many of its details, that of our own Middle Ages. It is not a process by which one person counteracts the injurious influence of another person, but one by which a human being, through the knowledge of the appropriate rites, is able to act upon a non-human being in such a way as to counteract his influence.

MAGICAL ACTION ON SEPARATED PART OF VICTIM'S BODY OR TOUCHED OBJECT.

The third kind of process which I have included under the heading of magic is that in which disease is believed to be produced by acting upon some separated part of the body of the victim or on some object which has been in contact with him. This kind of magic, usually known as sympathetic magic, has been so frequently considered[9] that it is hardly necessary to consider cases in detail. I propose to confine my attention to one example, which may help us to understand the exact nature of the process more clearly than has hitherto been possible. This example has only recently been recorded by Keysser,[10] a missionary among the Kai, an inland people of the north-eastern part of New Guinea. This procedure is of especial interest in that it shows the presence among this people of ideas concerning sympathetic magic which brings it into close relation with our second category in which disease is produced by the abstraction of something from the body. According to Keysser, the Kai believe in a soul-substance which permeates not only every part of the body, but also extends its presence to anything which has been in contact with the body. When a sorcerer secures part of the body of his proposed victim or an object which has been in contact with his body, he is believed to be really securing part of the soul of the person, and it is by the action of his magical processes upon this isolated portion of the soul that the rites of the sorcerer produce their effect.

A sorcerer who thus secures part of the soul-substance of one whom he wishes to injure repairs to a lonely hut situated in a spot reputed to be the haunt of a ghost or other spiritual being, so that it is avoided by all except those who have undergone special initiation into this mode of magic or have in some other way acquired knowledge which enables them to visit the spot with impunity. Often several sorcerers act in concert, each performing the rites I am about to describe, at first independently and later in concert.

The fragment of the body of the victim, or of something which he has touched, by means of which the sorcerer acts, is called *gâ*. It may be hair, a drop of sweat, excrement, remains of food, or even a piece of wood which the victim has touched. The *gâ* must have been freshly removed from, or been in contact with, the body of the victim, so that the sorcerer can be confident that it still contains the soul-substance of his victim. In order to ensure its retention the *gâ* is put at once in a piece of bamboo which is hidden and kept warm by being placed in the arm-pit of the sorcerer. The *gâ* must not be taken near fire or smoke, nor must it be brought into contact with water or with any sharply pointed object, for all these conditions tend to expel the soul-substance from its resting place.

As soon as possible the sorcerer wraps the *gâ* in a leaf of which caterpillars are fond, with the idea that as the leaf is eaten by caterpillars so will the body of the victim be eaten by worms. The *gâ*, wrapped in the leaf, is put in a small bamboo, which must have been taken from a place inhabited by ghosts or spirits. Fragments of the bark of certain trees are added to the packet; some are added in order to make it heavy, for it is by means of the weight of the packet that one judges whether the soul-substance is present or has disappeared. Another tree the bark of which is added has a very thick stem, and is used in the hope that the body of the victim will swell, while the bark of other trees is added on account of their evil smell. The bamboo and bark are wrapped in another leaf and bound up with a creeper which withers very quickly, pointing thus to the rapid wasting and death of the victim. The packet so made is closely bound till it is just of a size to go into a larger piece of bamboo, which must also come from the abode of a ghost or spirit. This is put in yet another bamboo, which is sealed with the inspissated sap of a tree and covered with shells. As the packet is thus wrapped and sealed the sorcerer calls to the white cockatoo, "Cockatoo, Cockatoo, come and tear open the body of X; bite his entrails to pieces so that he dies." The packet is then bound to a rod and over it are sung words

[7] Water containing reddish algæ.
[8] The *kaia* are said to dwell in hollows in the hills.

[9] See especially J. G. Frazer: The Magic Art, London, 1911. For examples from Melanesia, cf. Rivers, op. cit., i., 156.
[10] In "Deutsch Neu-Guinea," by R. Neuhauss, Berlin, 1911, vol. iii., p. 135.

by means of which the spirits are summoned from the hollow where they dwell to take the soul of the victim to the home of the dead. The packet is wrapped in a prickly creeper so that the body of the victim shall be tormented with painful stings, and then in a leaf with fine hairs which tickle and irritate the skin, and the whole is wrapped in a withered leaf of the bread-fruit tree, with the idea that as the leaf falls to the ground so shall the body of the victim wither and fall into the grave.

During all these proceedings the sorcerer murmurs: "Oha and Wakang; ye two giant lizards; lay yourselves on his soul and press upon it so that all joyful springing and all pleasure shall cease. Stop his ears so that he no more hears and his thoughts become confused." As these words are uttered the sorcerer beats with his open hand on the packet in order that painful blows may affect the body of the victim. The packet is then bound once more with a creeper, while the following formula is uttered: "Fall and rot like the gherkins. Let the victim disappear in pains. May his limbs writhe in pain. May his whole body writhe in pain. May his entrails become contracted in pain. May his generative organs be distorted in pain." These proceedings are not carried out once merely, but are repeated again and again, it may be for many months.

Every other day the sorcerer enters the lonely hut where he keeps the imprisoned soul and treats it in this way, putting the packet on each occasion upon the ashes of the fire, and this goes on until the victim begins to sicken when the proceedings enter upon a new phase. The packet is heated at the fire after being covered with fine prickles, and the bark of a tree covered with tubercles is added so that the body of the victim may be covered with similar lumps. The packet is bespattered with the chewed root of a hot peppery plant so that the victim shall have fever. The fire at which the packet is heated must be made only of certain woods and of a creeper, the section of which darkens when it is cut, with the idea that the skin of the victim shall darken and his blood become black. Every day, if possible, the packet is laid on the fire with the words:—

> "Eagle and Hawk. Ye both, here is your prey. Seize it with sharp claws.
> Rend his body and tear it to pieces. Then may corruption and worms, maggots and beetles utterly destroy his body."

At every repetition of this spell the packet is turned round by an assistant while the sorcerer himself mimics the agony of his victim. He cries, shouts, and groans as if in pain. He complains to his friends who visit him and prays for help and sympathy, and his assistant comforts him in the way of one who visits a friend in so grievous a situation. Finally, the sorcerer groans like a dying man, imitates the death-rattle, draws his last breath, and pretends to be dead. Before leaving the packet for similar treatment on another day he puts it between pieces of wood weighed down with a stone and covers the whole with ashes.

In order to reassure himself from time to time that the soul is still in the packet the sorcerer goes to the hut in the darkness and listens. If he hears a rustling in the roof of the hut or any other sound he is satisfied that the soul is still there, and that his labours still await their reward. To assist his purpose, however, he must submit to many hardships and restrictions. He must not bathe nor let rain touch his skin. He may only drink the water of puddles which have been heated in the sun, for the cool water of a stream would allay the burning fever of his victim. Even pure water of any kind may be regarded as unsafe, and the sorcerer may drink only water which has been used for cooking. He must not eat boiled vegetables, but must roast his *taro* at a fire. During the whole proceedings he must abstain from sexual intercourse, nor should he take food from men who have not so abstained.

In the hut where the packet is kept there must be deathly silence. No one must speak aloud nor cough loudly. All conversation must be conducted in whispers. No wood may be broken, and such noise as that produced by treading on twigs must be avoided. The hut itself consists of two chambers, in the smaller of which the packet is kept, and no light is allowed to enter this chamber, so that the imprisoned soul may receive no ray of hope for its escape.

The whole proceedings reach their climax at a feast which has brought together the people of many parts. The sorcerer and his companions leave the rest and assemble in the lonely hut. All those who have been carrying out these rites bring their bundles with them. These are weighed on the open hand, so as to judge whether the soul is still present, and those found to be too light are set aside. The rest are put in an old pot covered with shards, strewn with ashes, and surrounded with a ring of fire. Then the sorcerers imitate the sickness of the victim, after which the packets are taken from the spot and laid on an open fire so that the outer coverings are consumed with the idea of bringing the disease of the victim to a crisis. The sorcerers writhe as if in mortal pain, sigh, groan, and utter loud complaints. Their friends visit them, pity them, and express opinions about the people by whom they may have been bewitched. While some of the sorcerers are thus simulating mortal sickness, others take the packets from the fire and wring them between pieces of cloth with the idea that the victim shall be smitten with mortal agony, his throat and heart pressed together, his breath driven out, and he himself driven to death by terror and despair. The pieces of cloth are cut and each packet falls to the ground while some mimic the death of the victim and others utter his death-wail. At the same time a tree in the neighbourhood is felled to which the name of the victim is given.

Finally, the packet is thrown in the fire so that the coverings are completely burnt and the bamboo vessels within it are wrapped in bark and beaten violently with a stone, while the death-scene is again portrayed. While some lie as if dead upon the ground, others talk about them and their affairs and put on women's head-dresses and wail as if they were women. They utter the reproaches of one village against another and threaten fearful revenge. The wordy war leads to blows, and with cudgels and sticks to represent weapons the sorcerers fight in mockery of the combat which will follow the death of the victim.

TREATMENT: MAGICAL OR RELIGIOUS NATURE OF RITES.

The treatment of the morbid conditions produced by these magical proceedings is inspired by beliefs of the same order, consisting of measures to counteract the rites of the sorcerer. The method, frequently found elsewhere, in which the sorcerer himself is induced by payments or other means to remove his spell, in this case to release the imprisoned soul-substance, is not mentioned by Keysser, but the release of the soul is brought about by other means. A friend of the victim may secretly free the soul from its prison, or the liberation may be effected in a symbolic manner. A magical receptacle in which some soul-substance has been put is rubbed against the breast, back, and legs of the patient to portray the return of his own soul-substance to his body, and the receptacle is then torn asunder to show that the soul is free. The action is repeated three times, on each occasion with a different formula, and by the power of these actions the soul-substance which has not been sufficiently closely bound can again be made free. The principle underlying another method is that of the extinction of fire by water, some of the soul-substance of the patient being placed in the cool water of a mountain stream. In still another method some of the soul-substance of the patient is enclosed in leaves and hidden within a hollow stone, which is then thrown into a deep pool. The therapeutical measures thus employed by the Kai in order to cure disease produced by magic thus reveal the same dependence of treatment on etiology which we have found among other peoples and in proceedings of other kinds.

These elaborate rites of the Kai would be regarded by all ethnologists as an example of magic, but they have several features which bring them very near to religion. The formulas are not decisive in this

respect, though more than one seems to have in it a note of appeal to higher powers. Still more significant of the religious attitude is the ordinance that certain of the objects used in the rites must have come from the abode of ghosts or spirits. The methods of treatment, on the other hand, seem to be purely magical, and taking the rites as a whole they must certainly be regarded as magical rather than religious.

CONCRETE NATURE OF BELIEFS UNDERLYING THE RITES.

The rites of the Kai provide characteristic examples of the two kinds of sympathetic magic known respectively as imitative or homœopathic and contagious magic. The principle which has hitherto been held to underlie these forms of magic is of a more or less mysterious kind.

Thus, Sir James Frazer[11] refers the belief in the connexion between a person and a separated part of his body to a relation "which we may conceive as a kind of invisible ether, not unlike that postulated by modern science for a precisely similar purpose—namely, to explain how things can physically affect one another through a space which appears to be empty."

Sir James Frazer does not, of course, intend this explanation of contagious magic to be anything more than a figurative expression, in the language of modern science, of the modes of thought which determine the actions of savage man. Into whatever equivalents, however, we translate his language, the ideas thus held to form the basis of contagious magic will have an abstract, if not mystical, character which I believe to be opposed to the concrete nature of the mental processes of peoples of rude culture. Often the savage performs rites of the most complex kind merely because this course of action has been prescribed for him by the immemorial traditions of his community, but where direct motives for his actions can be discovered they have a concrete character very different from that suggested by the metaphor of Sir James Frazer

The special interest of the blend of medicine and magic practised by the Kai lies in the concrete and definite character of the beliefs which underlie these elaborate rites. The savage has few concepts more definite than that of the soul and of its continued existence after death. We have only to qualify this concept by the addition of the belief that the soul is divisible to give us the principle which underlies the magic of the Kai, a principle as definite as any of those which underlie the religious conduct of civilised man. The contagious magic of the Kai rests, not on any mystical belief in action at a distance, but on the belief that the sorcerer has in his possession part of the soul of another person, part of the vital essence of the person he wishes to destroy. The conduct of the sorcerer might be held to imply a belief that action upon the part is equivalent to action upon the whole, but it is probable that there is rather confusion between part and whole, or more correctly in the case of the Kai between soul and soul-substance. That this is so is suggested by the confusion between soul and soul-substance which occurs in several parts of the account given by Keysser.

We only know of the concept of a divisible soul-substance in New Guinea and the Malay Archipelago, and we must await further evidence to show how widely diffused it is throughout the world. All that we can say now is that this concept affords an explanation of much in the ways of savage man which is at present mysterious and unintelligible.

There is probably as little justification for ascribing the other main variety of sympathetic magic to any vague mysterious principle. The rites of the Kai are full of acts which show a belief in the efficacy of imitation, many of their features depending on the idea that the imitation of an event will bring that event to pass. This principle, often summed up in the phrase, "like produces like," is one in which there is nothing vague or indefinite. It may only seem so to the more scientific of our number because we have ceased to believe in it as a law of natural causation, though, as we all know, a variant of it forms the basis of a system of medicine which still flourishes among us. Such positive knowledge as we possess concerning the psychological processes underlying the blend of medicine and magic leads us into no mystical dawn of the human mind, but introduces us to concepts and beliefs of the same order as those which direct our own social activities.

[11] Op. cit., vol. i., p. 54.

CONTRIBUTIONS TO THE STUDY OF SHELL SHOCK.

BEING AN ACCOUNT OF CERTAIN CASES TREATED BY HYPNOSIS.

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II.[1]

IN this communication I propose to describe a selected few of various cases of "shell shock" which I have had the opportunity of treating in the field by means of hypnosis.

Total Amnesia.

CASE 4 (Case-number 390).—Private ——, admitted into a field ambulance and seen by me there three days later, having been found wandering in a neighbouring village, clad only in his shirt and socks. He was unable to give his name, regiment, or number. He thought his age was between 20 and 30. I tried him with various christian names, but he replied that none of them seemed familiar to him. He could remember two men finding him as he was strolling on the outskirts of a village, and could describe everything that had occurred to him since then. There was no means of identifying him, and his past was a complete blank; he could recall nothing, for instance, of the events of his childhood.

He appeared considerably depressed at his condition; he said that he wished he could recover his memory and that it would be a worry to his "people," if he had any belonging to him. He did not complain of any aches or pains, only of numbness over the occiput. His legs were tremulous as he lay on his stretcher, his hands were tremulous when held out, and his tongue was faintly tremulous on protrusion. His left arm and leg and the left side of his face (not scalp), chest, and abdomen were hypalgesic; his voluntary movements were normal. His reflexes, superficial and deep, were normal, save that the knee-jerks were exaggerated, and a pseudo-clonus was obtainable at the left knee and at the right ankle. His pupils reacted very actively to light; no limitation of visual fields, eye movements normal.

He had slept fairly well since his admission to the field ambulance, but complained of a nightmare on the night before my visit, when he dreamed that he was in the trenches throwing bombs, and that the Germans threw one at him which hit him in the nape of the neck, waking him up "in a cold sweat."

Under hypnosis, into which he easily passed, he first repeated to me his dream. Then his thoughts turned to his mother living in a small house in the country, "near a big town," "where they make anchors and chains." He recalled working with his father as a labourer on hayricks. All this information had to be dragged from him piecemeal with considerable difficulty. He next recalled the names of the

[1] The first of these communications appeared in THE LANCET of Feb. 13th, 1915.

village and of the manufacturing town near by. Then he gave me his own name, regiment, and number, but always with uncertainty, qualified, for example, by the words "I think." Finally, he was persuaded to describe what happened after the bomb-throwing (for his dream turned out to be an actual event), "I must have gone off my head and run away. ..... I must have taken off my clothes in a field. ..... I spent the first night under a hedge. ..... I spent the next two nights in a wood. I ate nothing. ..... The next night I was walking along a road on the outskirts of a village, and I was taken to a house by two men." These data, like the preceding, were only extracted with great difficulty and after much persuasion.

When he awoke from hypnosis the suggestion which I gave him before waking that he would remember all that he had told me proved only imperfectly effective. He could not remember his name, regiment, number, nor the names of his native village and the neighbouring town. But in reply to further questions he had a vague recollection of having been dreaming of his mother and of his wanderings, and he could be induced to recall them as well as his former occupation, the town where they make anchors and chains, &c.

When he was rehypnotised without delay, his memory became much clearer and ampler than before, and he was far more certain of his past history. He recalled, for example, the standard (7th) at which he left school (at 14) and a punishment he had received since enlistment for "cheeking" a sergeant. Then he told me that he had been in France for eight months and had enlisted nine months previously. A much more powerful suggestion was brusquely given, followed by a complete recovery of memory on waking from this second period of hypnosis. His entire expression changed, his pupils became larger, and his despondency disappeared. At the same time the previous occipital numbness and left-sided hypalgesia vanished.

Transferred to a base hospital, and thence for three weeks to a hospital in England, he has made an uninterrupted recovery and has now rejoined his unit.

Rhythmic Spasmodic Movements.

CASE 5 (Case-number 362).—Private ——, aged 23, seen by me at a casualty clearing station the day after admission. Three days ago, he said, the Germans sent over "whizz-bangs and coal-boxes" in reply to our shelling, and he had been told that he "got pitched up in the air." But the last thing he remembered of the occasion was being on guard, the next was digging himself out of the fallen sandbags. He remembered running then to the shell trench, but he "found this too hot" and returned to the firing trench, going to his dug-out, when he noticed that his eyesight was defective. He lay in the dug-out, flinching each time a shell came, and "trying to get into the smallest possible corner." At night he came out to endeavour to "do guard," but someone noticed that he was making involuntary spasmodic movements which had begun a short while previously. He was ordered to return to the dug-out, was helped to the regimental aid-post by a man on each side of him, and was sent to hospital. He had enlisted for the war and had been in France eight months. He had also "got shook up a bit" four months ago, when five or six bombs threw dirt in his face. His hands and his handwriting then became shaky, but he did not "report sick."

His appearance was that of a strong, robust, and honest man. He seemed depressed and begged me to make him well. His most noticeable movements were in his legs, but occasionally he shrugged his shoulders. On admission, I am told, the latter movements were much more marked, and he kept diving beneath the bedclothes, bringing up his knees to meet his chin. To-day the leg movements were due solely to strong, periodic, simultaneous contractions of the two sartorius muscles, the rate of contraction of which varied from 60 to 70 per minute, increasing to 90 during the excitement of examination. These involuntary movements were observed by the sister to continue during apparent sleep. Pulling down the patella was found to inhibit one or two contractions of the corresponding sartorius. His knees remained extended when the thighs were passively raised from the bed. He complained of severe headache, "as if I had had a hammer dropped on my head." His legs were very tremulous, especially when he lifted them; his hands and tongue were only faintly tremulous. His right leg and arm and the right side of the face and chest (not the abdomen) presented certain disturbances of sensibility which can be better described in a later communication devoted to this subject. His voluntary movements were normal. Only the patellar and plantar reflexes were examined. Of these the former were much exaggerated, while the latter could not be elicited, probably owing to the rigidity of the feet. His pupils were of moderate size and reacted normally to light; visual fields and eye movements appeared normal.

Under hypnosis he was able to recall all the events during the period of his previous amnesia. He remembered the direction from which the shell came, how he was lifted up, how he fell on his back, &c. As he passed into a deeper state of hypnosis the contractions of the sartorius muscles became very much diminished, but did not absolutely disappear. Before rousing him from hypnosis, I suggested that now and on waking he would lose his headache and his involuntary movements, and that he would recover his spirits and his memory. The movements at once ceased and he awoke able to stand, absolutely free from his headache and spasmodic movements, with recovery of memory, and, as other observers spontaneously remarked, "looking another man." The previous unilateral disturbances of sensibility were found to have disappeared.

He was transferred to a base hospital.

Mutism.

CASE 6 (Case-number 19).—Private ——, aged 32, seen by me the day after admission to a base hospital, completely mute, but able to read and write. He wrote: "I was buried alive on —— and again on —— (5 months and 4½ months respectively before admission), and then I had the misfortune to have two shells burst over me on —— (four days before admission). There was shelling for about 20 minutes and then two bursted over my head. I did not remember any more until you came to see me, but I am still liveing in hopes to regain my speech back." In reference to his first burial he also wrote that he afterwards wandered with Lance-Corporal —— for two days, but that his memory for these two days was completely gone; his comrade and he finally came across men of the French artillery, who enabled them to rejoin their regiment. He could not recall how he got his food during those two days. He said that this time, although he found a piece of shell in his tunic, he was unhurt, but that on the first occasion he fell and hurt his back, and suffered for some time from pains in the back and head and from insomnia, which had recurred now.

His understanding seemed slow and his look was vacant. Occasionally he made jerky movements of the arms and a noise like a snore came from his naso-pharynx. His voluntary movements were restricted, weak, slowly executed, jerky, and incoördinated, but they were not tremulous. He could not raise his arms above his head, nor could he keep them raised in front of him. Even with his eyes open he failed to touch his nose with his index finger-tip and he stood very unsteadily. The sense of position appeared to be unimpaired (cutaneous sensibility not examined). The only vowel he could imitate was A (continental pronunciation), the only consonants S and P. His knee-jerks were exaggerated, the plantar reflexes were flexor, the abdominal reflexes could not be obtained. His pupils were widely dilated, but reacted well to light. His eyes moved normally. His visual fields were somewhat restricted on the temporal side. He could not hear a faintly ticking watch, even when in contact with either ear, but he heard better by air than by bone conduction. His bowels had not been opened since the shock—i.e., for five days. He passed urine voluntarily now, but during the journey to the base he was catheterised in the train. On my visit the third day after admission he seemed much brighter, and his movements had improved in extent, speed, and coördination. He began to imitate monosyllables, and he explained in writing that he "cannot think how to speak," feeling "just like an infant."

By the seventh day all signs of stupor and ataxia had disappeared. With great difficulty he managed slowly to repeat after me the names of the county borne by his regiment and of the village in which he lived. Next day he could give me these names in response to my questions and could give me the christian names of his wife and child. He sweated profusely during these efforts. He never spoke of his own accord

Sixteen days after admission his speech was improving, but he showed me a report he had written out for me of his

condition, and in so doing burst into tears. Apparently to-day he had overheard a sister expressing the opinion that he was a malingerer.

Under hypnosis he spoke distinctly more fluently, although still with feeble voice power, but on being questioned about trench life he became extremely emotional and suddenly awoke, wiping the sweat from his chest.

On the following day, under hypnosis, his speech was at first slow and hesitating, as if he was disinclined to speak. Finally, after repeated suggestions and encouragement, he was induced to recall the forgotten events on the second occasion of being buried. He named the man who pulled him out of the trenches and described the hospital to which he went and his train journey to this base. He responded readily to post-hypnotic suggestions that on waking he would remember all that he had told me, would be able to speak louder and more fluently, and would perform certain somewhat eccentric actions.

Three days later (three weeks after admission) he appeared a normal man save for slight deafness and the complaint of "coming all over of a shake" when he heard a gun fired. He moved and spoke naturally and his spirits were excellent. He had no recollection of telling me his forgotten experiences under hypnosis, but he could now recall all that he had told me and more. His loss of memory had wholly disappeared save in reference to the two days' wandering which followed the first occasion of burial. Under hypnosis to-day he recalled that he spent those days wandering over open country with Lance-Corporal ——, that they fed during the first day mainly on potatoes which were cooked for them in a farm by a woman and her husband, that they spent that night in the open, and that they found the French on the following day.

He was transferred to-day to a hospital in England.

Stupor.

CASE 7 (Case-number 63).—Private ——, aged 29, admitted into a base hospital and seen by me on the following day. He was in a condition of pronounced stupor and had to be repeatedly roused from his apparently dazed condition in order to obtain his attention. He could not recall his name, regiment, or age. He could neither write nor read words; he could name a few letters in very large type, but was liable to confusion. Twice he said "water," "comrade," and then made a gesticulation of falling. He was not deaf. He agreed that a shell came. He complained by gesture that he had pains in the forehead. His gait was normal, but he could not hold his hands out for many seconds without dropping them. His patellar reflexes were brisk; his pupils reacted to light normally. (Cutaneous sensibility not examined.)

Four days later his condition was only slightly better. He had never spoken voluntarily, he was still unable to give his name, but he was more readily attentive, and replied "Yes" when asked if his name was ——. With great effort and after much encouragement he wrote his name. Again he complained, by gesticulation, of severe headache.

On the following day he could give me voicelessly the names of his two children. He could still only read capital letters, but once more confused some of them. He could not read aloud the figure 2, but could express its meaning by holding up his two fingers. The next day he showed me his wife's photograph, and with great effort, syllable by syllable, of his own accord gave me her name.

A week after admission, his speech being still extremely limited and laboured and his memory of his recent experiences being still unobtainable, I subjected him to hypnosis, in which state, after much persuasion, I induced him to talk about the events that had preceded the onset of his disorder. He became very excited, breathed rapidly, and made gestures showing the positions of the various items in the scenes he began to describe, evidently visualising them vividly. Hoarsely and breathlessly he explained in broken sentences how he was in the trenches and was sent to draw water at a pump when two or three shells burst over him, knocking him down. This seeming a sufficient recovery on the first trial of hypnosis, he was awakened after certain post-hypnotic suggestions had been made to him; these he carried out. He could repeat all he had told me under hypnosis, speaking with considerable effort, but with far less emotion and with enormously improved fluency and speed. He could now give me his home address.

Two days later, no further recovery of memory having occurred, I hypnotised him a second time, whereupon he described to me how, after being shelled, he lay on the ground in a dazed condition for some minutes, and how he then rose, picked up the bottles, and returned to the trenches, after which he "lost all sense and reason." He said, "I remember my mates telling me I was silly. It was time for us to be relieved at the trenches, but I don't know how I went back with the boys; it was only a short distance to the village. After that I remember nothing until you tried to make me speak." By further persuasion I elicited from him full details of the still forgotten interval, how he got back to his billet, took off his equipment, then lay down, and was wrapped in a blanket by one of his comrades. "I remember going to the doctors, complaining of a bad headache. ..... I remember a jolting ride, and then I lay on a blanket in a big room full of men." By now he recalled the whole of his forgotten experiences, including the train journey down to the base.

On the following day, being asked whether he did not feel himself again, he complained that he still wrote with very great difficulty and inaccuracy, that his speech, like his writing, was not so rapid as normally. His writing was certainly very laboured. Consequently he had not liked to write home to his wife, but had been obtaining the services of a fellow-patient for the purpose. Under hypnosis his speech and writing were restored to their normal rate. He learned to say with astonishing rapidity the verses, "Peter Piper picked a peck," &c., and was induced to write a letter to his wife at very good speed. Post-hypnotic suggestions that on waking he would repeat these verses and write the same letter to his wife, and that he would hereafter write and speak with normal ease and rapidity, were absolutely successful.

He was discharged two days later to a hospital in England, and has since been passed for foreign service, occasional severe headache preventing him from active service in the field.

General Remarks.

Malingering.—After nine months of special work in France and Belgium upon these disorders I have not the slightest hesitation in maintaining the genuineness of the cases above described. The condition of hemi-hypalgesia in Case 4 and the peculiar disturbances of sensibility mentioned in describing Case 5 have occurred in numerous other cases which have come under my observation. The persistence of the spasmodic movements during sleep, their confinement to the sartorii, and the spastic condition of the legs in Case 5 also point to the absence of malingering. So, too, do the severe constipation and retention of urine in Case 6 and the mode of progress towards recovery in Case 7.

Condition before hypnosis.—Although these cases have been described under headings which are determined by the most prominent disorders characterising them, it will be seen that certain disturbances are common to all, e.g., amnesia, varying from complete obliterations of the past to obliviscence of the scenes occasioning and following the shock, severe headache, and a mental condition varying from slight depression to severe stupor. Disturbances of sensation and movement might be absent or, if present, were extremely variable. Mutism, when present, had begun to disappear by the time hypnosis was attempted. The stuporose condition was also disappearing by that time.

When in a state of severe stupor all that could be obtained from the patient were remarks as to the shelling, as if his condition were due to the concentration of the patient's attention on the scenes which had upset him. A little later an alternation of states often occurred. One subject, for example, whispered to me, "Did you see that one? ..... It went up on top." "What now?" I asked. "They keep going over," he replied. Unable to catch a remark, I asked, "What did you say?"

"I was talking to my mate" was the reply. To my question "What were you saying?" he answered "Get rifles." This patient could be made to realise he was in hospital, but explained his inconsistent behaviour by the remark, "Can't help it. I see 'em and hear 'em (the shells)."

In another case of apparent depression accompanied by deafness the latter symptom was found to be very largely due to inattention, his thoughts repeatedly flying to the trenches. For a few minutes his attention could be gained, then his answers became absurd: the question "How old are you?" for example receiving the reply, "It passed my right ear." He would often ask me to speak louder when on the point of lapsing into thoughts of trench life. In another case the alternation of states was so marked that on being unduly pressed for his thoughts when in a stuporose condition he assumed an attitude of hostility, rushing about the room with an imaginary rifle in his hands.

Indeed, in all these cases whenever the memories dissociated from the normal personality were revived they were accompanied by an outburst of emotion, sometimes of frenzy, but generally of fear. But in the cases described in this communication it was impossible without the help of hypnosis to obtain any revival of the lost memory. Not even in dreams did it return. When such patients endeavoured to think of their forgotten experiences their headache became so severe as to prevent them from further effort. When, if mute, they endeavoured to talk they complained generally of a pain in the throat, usually as if someone were gripping their thyroid cartilage.

Condition during hypnosis.—These pains appear to constitute the guardians of the condition of amnesia; any effort on the patient's part to break down the latter generally resulted in increased severity of the former. It is, therefore, not surprising that pains frequently caused the patient to wake from hypnosis as soon as his attention was directed to his forgotten memories or when attempts were made to get him to speak. Experience soon taught me that before I could induce free speech during hypnosis I must first dispel, by suggestion, all pain, soreness, or discomfort in the throat, and that before I could hope to revive lost memories during hypnosis I must first suggest the disappearance of headache and prevent the recurrence of any trace of it. Even then there was frequently a strong disinclination to talk of the forgotten periods, as if they were being actively inhibited or "suppressed" rather than as if they had been passively "dissociated." When at length this reluctance was overcome the attitude of the patient often changed from depression to excitement, especially when the former condition had been well marked. His pulse and respiration increased in frequency, he sweated profusely, and not infrequently showed clear evidence of living again through the scenes which were coming vividly to his mind.

Condition after hypnosis.—There usually followed a distinct change in the attitude of the patient. His previous despondency vanished; he was delighted at having recovered his speech and memory. Sometimes the change was so well marked as to appear like an alteration of personality. In the case of one patient, for example, who had recovered considerably from stupor and mutism before I saw him, but who was still in a miserably lacrymose and dejected condition, I was able to cure his amnesia by means of hypnosis and to bring about the following changes, the account of which I extract from my note-book.

During hypnosis I suggested that on waking he would remember the past, forget that he had already told it me, and say that he felt quite fit and ready for a job of work in the hospital. This he did, but talking in the same semi-stuporose manner as before hypnosis. Just as he was going out of the door I clapped my hand on his shoulder and asked, "Now what about those shells, D——?" His manner almost instantaneously changed. His voice and way of speaking seemed as if of another person. He brightened up as he rattled off a quite coherent and interesting story. He bore himself like a good soldier, and returned to his ward, where everyone was amazed at his changed demeanour, and he proclaimed himself quite well.

In the four cases described at length in this communication similar but less marked changes followed the awakening from hypnosis. Increase in the size of the pupils was also noted in one of them, while in two other cases, not here recorded, the pupils, widely dilated before, now returned to a normal size. In another case the patient said that before his memory had been restored to him through hypnosis his mind was continually "rambling" from one train of thought to another, whereas afterwards it "worked as usual." Other post-hypnotic changes also occurred in which previous suggestion (during hypnosis) played no direct part. The best marked of these was the disappearance of disturbances of cutaneous sensibility (Cases 4 and 5).

The results of hypnotic treatment.—At the time of writing[2] I have hypnotised, or attempted to hypnotise, 23 cases of shell shock. The conditions under which I worked were such that no patient was subjected to further hypnotic treatment unless he proved readily hypnotisable on the first trial. The immediate results may be summarised:—

(1) Apparently complete cures	26	per cent.
(2) Distinct improvement	26	,,
(3) Failure to hypnotise	35	,,
(4) No improvement after hypnosis ...	13	,,

The patients included under (4) were: (*a*) two afflicted with deaf-mutism, to whom suggestions of hypnosis could consequently be conveyed only in writing and could not readily be enforced during hypnosis by such relatively ineffective method of communication; and (*b*) one suffering rather from aphonia and incoördination of speech movements than from true mutism, who I suspect artificially maintained, at least in some degree, his symptoms and the hypnotic state into which he seemed to pass.

A point of greater interest, however, is the further history of the apparent cures. Even in France I had ample evidence to show me that recoveries after hypnosis need not be immediately complete or permanent. One case, for example (not included under (1) in the above table), is perhaps worth recording at length.

CASE 8 (Case-number 272).—Rifleman ——, aged 30, who was admitted, four days before my first visit to him at the base, into a casualty clearing station, "having the air of an imbecile, and having wandered about in an aimless fashion, not knowing where he is or what he is doing, but having a fair knowledge of recent events." On his way down to the base he had passed through another casualty clearing

[2] Since this was written I have had opportunities of practising hypnosis on several other cases.

station, where he was described as "remaining absolutely speechless and terrified on being questioned."

On examination I found him in a state of evident terror, but after persuasion he talked (in a faint voice) of his wife, home, and previous occupation. He gave the present month as October (actually August), and said that he had been out in France two months (actually 12). He had no recollection of getting to this hospital. He last remembered himself at the trenches, the scenes in which he described with obvious emotion. His mind then wandered to his wife whom he pictured sewing. When not actually terrified, he was in a miserably depressed condition.

Under hypnosis he remembered going into a dug-out after running away from the shells falling in the trenches, but he could not recall anything later. He could be made to talk in a loud voice, but he awoke spontaneously from hypnosis, with little change save an improvement in his headache.

On the following day, when hypnotised, he gave me correctly the present month and the month of his arrival in France, and could give me the names of two towns, V—— and B——, close to the firing line. On waking he believed himself to be at the latter of these towns. He was again much worried about his wife, mentioning her christian name and the words "no work." I got him to write a letter to her, the first he had sent her since his illness. It was the ordinary letter of a soldier, containing no reference to his condition.

The next day he was considerably changed in behaviour and was now active, busily engaged in making the beds in the ward. But he was mute (possibly affected by a case of mutism then in the same ward). Under hypnosis his speech returned, and he recalled the immediate cause of his condition, his visit to a horse show at B—— with a man named R——, and his return towards his billet at night, when shells began to fall on B—— railway station, and something hit his back. He said that he ran to a shed not very far from his billet. He was found hiding in the shed that night, and was brought into "a sort of hospital" in a motor ambulance. After he awoke from hypnosis his power of speech was maintained, but it failed whenever he was asked about the incidents described above. After much effort it returned, but his voice was weak and again mutism followed when he was pressed about these incidents.

The following morning he awoke, speaking in a normal voice. His neighbour said that he nudged him, asking, "Is it me that's talking?" To-day the change in his appearance was still more striking; he was now quite garrulous, and seemed a very intelligent, agreeable fellow, whereas before he was depressed and dull. His memory was now far more reliable and complete as to his past history.

At V—— he had been in the trenches up to a week before the onset of his present condition. He was now able to give me his reasons for worrying about his wife. He had only married just before crossing to France, and some months ago he had heard that she was pregnant. He had been troubled with the feeling that she was in money difficulties and kept thinking of the experience of a friend whose wife had lost her first baby at birth.

Since his return to England this patient has written to me that his recovery has been permanent and, save for occasional headaches, complete. He is now serving in his reserve battalion.

In another case, one of mutism (also excluded from the "apparently complete cures"), hypnosis was followed by a sufficiently complete recovery of speech for the patient to tell me his regimental number, but an hour later he was found to be again quite mute and "as dismal as ever." In this case, however, rehypnosis proved futile. He could not even be induced to write during hypnosis, although he had written out his history earlier. In my notes he is reported as being "too dazed and unintelligent during hypnosis, bordering, I fancy, on a hysterical attack (he had had two 'fits' while in the trenches); frequent tremors and clonus of arms."

Yet another patient completely recovered from his depression and amnesia at the first trial of hypnotic treatment, but was accidentally discharged from hospital on the following day by a medical officer who, judging from the patient's appearance and in ignorance of his past condition, pronounced him fit for duty. Two days later he was re-admitted to hospital in the same stuporose, depressed, lacrymose state as before.

These and other cases show that hypnosis is of relatively little value when the condition of stupor is too profound, and that any subsequent worry (e.g., over home affairs) or terror (e.g., of scenes of the trenches or of returning to the front) is apt to induce a relapse. Accordingly, nearly all the severer cases of shock which I have seen have, at my advice, been sent to England.

The value of hypnotic treatment.—Despite the slow progress just recorded in certain cases, I have not the least doubt that the hypnotic treatment which these and other cases received here invariably proved of great assistance towards recovery, and would have proved of still greater value if it could have been occasionally repeated later. It may be argued that mutism, rhythmical spasms, anæsthesiæ, and similar purely "functional" disturbances disappear after a time without specific treatment. But no one who has witnessed the unfeigned delight with which these patients, on waking from hypnosis, hail their recovery from such disorders can have any hesitation as to the impetus thus given towards a final cure. More especially is this the case in regard to the restoration of lost memories. Enough has been already said here about the striking changes in temperament, thought, and behaviour which follow on recovery from the amnesia.

To go further into the subject would involve detailed consideration of the rationale of hypnosis in such cases, but this can be more conveniently postponed to a separate communication devoted to the psychology of shell shock generally. Nevertheless, surely this much may be taken for granted here, that the restoration to the normal self of the memories of scenes at one time dominant, now inhibited, and later tending to find occasional relief in abnormal states of consciousness or in disguised modes of expression—such restoration of past emotional scenes constitutes a first step towards obtaining that volitional control over them which the individual must finally acquire if he is to be healed. Thus the minimal value that can be claimed for hypnosis in the treatment of shock cases consists in the preparation and facilitation of the path towards a complete recovery.

BRITISH FIRE PREVENTION COMMITTEE.—The activities of the British Fire Prevention Committee for the year just brought to a close include the preparation and free issue of a large number of public "fire warnings" in the form of posters, circular letters, or as notices. Special notices were issued for hospitals, convalescent homes, refugee hostels, schools, billets, factories, and farms, whilst air-craft hazards were dealt with on general lines. The total issue exceeded 250,000. At the outbreak of the war a special fire-survey force of 100 surveyors was formed to undertake at short notice, and in an honorary capacity, any fire surveys required by the Government. The results of the work have been far-reaching. The greater care taken by the public to prevent outbreaks of fire by sensible and inexpensive precautionary measures has been most marked, as also the effort to meet fires with organised self-help and simple hand-fire appliances. A material reduction of the annual fire loss during the war has been achieved. The loss of life from fire has been reduced, and large quantities of produce and goods important to the conduct of the war have been thereby preserved.

THE ADVANTAGES OF WARM ANÆSTHETIC VAPOURS, AND AN APPARATUS FOR THEIR ADMINISTRATION.

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"Open ether" suffers from certain defects which detract much from its value and cannot be ignored. To avoid misunderstanding it is well to state at once that by this term is meant that method of anæsthesia by which ether is dropped (more or less) continuously on to some fabric spread over a mask which is so closely applied to the face that the whole of the air current, in both directions, passes through the fabric. Its chief defect is the lowering of the temperature of the inhaled mixture of air and ether due to the coldness produced by the evaporation of ether and the tendency to the formation of frost on the mask. This lowering of temperature is progressive, and may continue until the inhaled vapour may be 30°–40° F. below the temperature of the room. Cunningham and Anderson, indeed, have stated that in a room at 80° F. with the "open" method a 2·1 per cent. ether vapour reduces the temperature of the inhalations to 30° F., a 5·4 per cent. vapour to 9° F. If these figures as applied to the "open" method described above are correct, they are startling, but in any case every anæsthetist is aware that the vapour inhaled is chilled and that the temperature within the mask often reaches a low level. Evidence is adduced in this paper to show that the inhalation of such a vapour, besides having other consequences, reduces the body temperature to an extent which may no doubt be of comparatively small importance in many surgical operations, but in a great number, and especially in unfavourable cases where any adverse factor is of moment, must lessen the patient's chances of recovery and may increase the risk of pulmonary complications.

It is, further, a practical disadvantage of the method that saturation of the fabric and freezing of the moisture of the breath interfere with the free intake of anæsthetic and therefore with the smoothness of anæsthesia, and sometimes with a proper depth of anæsthesia. It is probably for this reason that some anæsthetists profess that they cannot obtain in all cases good relaxation with "open ether," and are loth to abandon the Clover.

It is only within recent years that scientific study has been given to the warming of anæsthetic vapours. It is true that it is one of the advantages of the Clover and other rebreathing inhalers that the patient inspires a warm vapour, and it has been asserted for this reason that Clover and the anæsthetists of his day recognised the importance of this subject; but it is clear from a study of their original articles that this is a mistaken idea if care be taken to distinguish between the measures which were employed to warm ether vapour in order to aid the administrator and the efforts which are made by the latter-day anæsthetist in order to benefit the patient. THE LANCET,* in describing Clover's apparatus as "the only one entirely approved by the Chloroform Committee of the Royal Medical and Chirurgical Society," says nothing of the temperature of the vapour. Clover, in describing his double current inhaler,[2] says that "the supply of ether vapour" is "rendered more uniform by attention to its temperature which was kept within limits by causing the expired air to pass through the ether vessel in a kind of worm"; again,[3] he provided in his second model "a reservoir of water to prevent the temperature of the ether becoming too low." In his account of his portable regulating inhaler[4] he also discussed this subject and decided to use a water-chamber surrounding the inhaler as the most convenient plan. Hawksley[5] introduced an inhaler at about the same time, the ether bottle of which was "half immersed in water heated to 100° F. in order to promote a more rapid and equable evaporation of the ether." No mention is made in any of these articles, nor in the description of the Ormsby inhaler (1877) of the value of warmed anæsthetic vapours to the patient, and no attention is given to this subject in the latest editions of the works of Sir Frederic Hewitt and Dr. Dudley Buxton. It is clear that in nearly all cases the patient did inspire a warm vapour, for he breathed backwards and forwards into a bag, and in the early days it was a common practice to wring a sponge or cloth out of boiling water, but it is equally clear that what Clover, Hawksley, and the others aimed at was the prevention of excessive cooling of the ether or actual freezing of the sponge which would interfere with the supply of the anæsthetic. It is interesting, on the other hand, to find in Dr. Foy's "Anæsthetics: Ancient and Modern" an illustration (p. 141) of a nitrous oxide apparatus, made by Messrs. Arnold, in which the agent is warmed by being passed through a hot water chamber, and the author tells me in a private communication that it is just possible that the above facts were familiar to the makers and influenced their design of the inhaler.

Anæsthetists have from time to time warmed their agents, but it was the advent of "open ether," with its prominent defects, that induced some specialists in this branch of surgery, notably Gwathmey,[6] to study fully the subject of the warming of anæsthetic vapours. Various devices have been already used in order to remedy these defects—e.g., cones of different patterns and the Ferguson mask—but they have never been wholly satisfactory, for they are really semi-open inhalers, and if they impart a certain amount of warmth and save a certain amount of anæsthetic they introduce at the same time an undesirable degree of rebreathing. Gwathmey[6] and Davis[7] attacked the problem on scientific lines, preserving the open character of the anæsthesia and investigating the effect of warm vapours on patients and on animals. As a result of their researches they have reached some important conclusions and have made a notable advance in the science of anæsthesia. Coburn,[8] Pinneo,[9] and others have introduced apparatus for delivering warm vapour, in addition to the names already mentioned, that of the former being applicable to either "open" or closed ether. The anæsthetists who have devoted themselves to the study of nitrous oxide and oxygen for use in general surgery, the pioneer of whom is Teter,[10] are almost unanimous in advocating the warming of these gases; their example has been followed by my colleague, H. M. Page, who has also added a simple warming chamber to Crile's nasal tubes.

Although the case for warmed vapours has been subjected to a certain amount of criticism,[11] which seems to be ill-founded, the evidence on which it is

* THE LANCET, Dec. 17th, 1864, p. 698.

based is too strong to be upset. Experimental and clinical observations of Davis and Gwathmey are mutually confirmatory. The latter[6] investigated this subject fully in animals, using chiefly chloroform and nitrous oxide and oxygen, administering them at room temperature and at a temperature of 100° F., and noting their effect under these conditions with reference to such questions as safety and maintenance of body temperature. He found that these anæsthetics are much safer when administered at blood temperature—e.g., whereas it took 6·57 minutes on the average to kill 16 animals with chloroform at room temperature, it took 20·35 minutes to kill 17 animals with warm chloroform. Similar results were obtained with nitrous oxide and oxygen, death occurring more quickly when the gases were administered at room temperature; the action of the heart and the respiration were also more irregular. Nitrous oxide and oxygen at a temperature of 33°–34° F. caused death in a much shorter time. Fewer experiments were made with ether, but enough to convince Gwathmey that warm ether vapour is twice as safe as cold. He concludes that all anæsthetics heated to the temperature of the blood are increased in value as regards life without their anæsthetic effects being decreased.

As regards the maintenance of body temperature Gwathmey's conclusions have been confirmed by the work of Davis,[7] whose observations have a particular interest for the anæsthetist who uses "open ether." It has long been known from the investigations of Kappeler, Allen, and others that the temperature of the anæsthetised person falls, due chiefly to diminished oxidation and to the interference with the heat-regulating centres. The fall is greater in proportion as the operation is protracted, or large surfaces of the body are exposed, or the loss of blood is considerable, and may be of great importance in feeble, very young, or elderly patients, particularly if no special precautions have been taken to cover up all parts outside the operation area. Davis supports the work of the earlier investigators, and points out that the method of anæsthesia has more influence upon the maintenance of the body temperature than is commonly supposed to be the case. He found that in 140 patients anæsthetised by the "open" method there was an average loss of temperature of 1·02° F., as against an average loss of 0·29° F. in 26 patients anæsthetised by warm vapour; the temperature was taken by the rectum immediately before and after anæsthesia. In 5 cases in which a large surface of the body was exposed, the anæsthetic being "open ether," the average loss was 1·98° F.; in 6 cases under similar conditions, except that a warm vapour was given, the average loss was 0·77° F. There was a loss of 2·99° F. after appendicectomy and removal of one ovary in a patient who during 1½ hours lay on a cold table, the abdomen having been flushed with fluids and covered with wet towels; these conditions are to be found less frequently to-day, but they still occur on a smaller scale in a certain number of abdominal operations. It is a good plan to change towels which have become wet with saline or lotion during a protracted operation, for if allowed to remain they have the same evil effect as the towels wrung out of antiseptic which were formerly used to surround the area of operation. These results of Davis are important, and he concludes from his observations and from experiments on animals that warming of ether vapour before inhalation will prevent loss of body temperature, or may actually increase it in a degree proportionate to the temperature of the vapour and also to that of the operating-room. Undue elevation of the temperature from this source is injurious. With regard to the effect of morphine, he states that the previous administration of this drug does not greatly increase the loss of body temperature caused by ether. Excessive application of heat to an individual under morphine will lessen the usual loss of heat; the additional administration of ether in these circumstances may lead to a rise in body temperature rather than to the expected fall.

Davis raises a subject of some controversy when he discusses the optimum temperature of the operating-room, for he favours a temperature of 80° F. or over, showing, as is only to be expected, that the higher the temperature the less is the loss of body heat. It is doubtful, however, whether his view will be generally accepted. High room temperatures lead to sweating and exhaustion, not only of those taking part in the operation—a matter of some importance in hospital work with a lengthy list of operations—but of the patient. Sweating is particularly harmful to the patient, both because he loses fluid and because he is chilled by contact with wet garments. The most rational procedure would seem to be to maintain a moderate temperature of 65°–70° F., to keep the patient warm and dry, and to prevent as far as possible the loss of body heat by the use of warm anæsthetic vapours. Nearly all patients complain of feeling chilled on recovery from an anæsthetic; and the change from the warmth of the operating-room to the lower temperature of the ward or bedroom, especially if cold passages have to be traversed, is a greater tax on the recuperative powers if the thermometer in the former has stood at 80° F. or higher. Dastre stated that the temperature falls more rapidly with ether than with chloroform, but Davis finds that chloroform produces a loss of body heat approximately equal to that of ether.

In addition to the defects of "open ether" already described, the waste of ether is a disadvantage; its extent depends upon various factors, and is unavoidable if this method is strictly followed. Another disadvantage is the diffusion of much vapour into the room, to the discomfort of everybody present. The last of the objections to "open ether" which it is proposed to discuss has been raised by Yandell Henderson.[12] It is that hyperpnœa may be produced, followed by acapnia which, he says, is the cause of shock. Henderson believes that this sequence of events often occurs where a too "open" method is used; where, on the other hand, a considerable degree of rebreathing is allowed and the anæsthesia is in reality a good "closed" ether—e.g., where a towel is used in the form of a cone—the patient comes through the operation with excellent colour, warm dry skin, quiet breathing, and strong pulse. He advocates strongly a return to "closed" ether, and owing to the vigour of his pleading and the known importance of carbon dioxide, "open ether" is losing some of its popularity in the country of its origin. It has not been shown, however, that the acapnia theory has gained universal acceptance or even received that measure of support which must be forthcoming before Henderson's conclusions can be allowed to dominate anæsthetic practice. Whilst it is true that acapnia may, or does, occur under certain conditions of ether anæsthesia, it would be

an exaggeration to say that it occurs commonly in English practice or to such a degree that it is of serious or even of any import. In fact, "open ether," not being open, compels a certain amount of carbon dioxide retention (which is kept within reasonable limits), and as it is usually preceded by an injection of morphine which depresses the respiratory centre, in some cases markedly, so that there is a difficulty in obtaining deep anæsthesia except after some delay, it is evident that hyperpnœa is an uncommon phenomenon. The danger of acapnia is not so likely to arise as that of excessive retention of carbon dioxide, for the anæsthetist wishing to prevent the wastage of ether is tempted to use some device to overcome it, with the result that the "open" becomes to all intents and purposes a "closed" ether, with a corresponding deterioration in the quality of the anæsthesia. The patient is a little cyanosed, there is some congestion, and breathing is a little hurried or even laboured. The chief advantage of the "open" method—viz., free interchange of air—has been lost.

We see then that, however skilfully administered, "open ether" places the anæsthetist in a predicament. He must choose one of three courses: either he must submit to the defects and difficulties of this method, or he must give it up entirely and revert to a rebreathing method, or he must endeavour to find a method which is an improvement upon both. If we admit the views of Yandell Henderson, and agree at the same time that "open ether" is economical neither of body heat nor of anæsthetic, we shall have to follow his advice to restore "closed" ether to its former position. This solution seems to be entirely wrong, for his views are non-proven and our aim is progress; we have only just emerged from darkness and found light, and it would be folly to throw away the advance gained in recent years. We can take yet another step forward by adopting an improved "open" method—viz., "warm vapour anæsthesia," by which is meant a system which applies to ether (or mixtures of chloroform and ether), the principle of the Junker, with the addition that the vapour is warmed and is of suitable concentration to be used in general surgery. The idea of using ether in a Junker bottle is not new, for Tyrrell[13] in 1897 showed a method of adding ether vapour during chloroform administration, calling it a "double bottle method." Stock[14] also utilised this idea, and determined the percentages of ether and chloroform which he was able to administer, and Apperly[15] introduced a simple and practical apparatus for vaporising ether for use in nose and throat operations, but none of these apparatus deliver a warm vapour or were intended for the maintenance of ether anæsthesia in general surgery.

Warm vapour anæsthesia has been used for some years in America; my own experience of it dates from October, 1914, when I was able to procure what I think is a suitable apparatus. It is an "open" method in which the patient breathes *from* an atmosphere of warm ether vapour and air instead of inhaling cold vapour *through* a fabric. It preserves the best points of "open ether"—viz., simplicity, free respiratory exchange, and equable dosage. It is economical of ether, since the patient receives at each inspiration a suitably adjusted and practically constant percentage; no ether is lost by evaporation and very little during expiration. It solves partially for those anæsthetists who do not use intratracheal insufflation the difficulties of anæsthesia in patients lying in awkward positions. Further, it enables the anæsthetist to be more out of the way of the surgeon and to be less hampered in his work than when he is using a drop bottle.

In addition to these advantages, warm vapours are more pleasant to inhale and are more readily absorbed by the blood, so that anæsthesia is induced more quickly and more quietly and can be made to reach a more profound depth in a short time. Teter[10] found that of 40 women who inhaled warm nitrous oxide (90° F.) many were unconscious after two or three breaths, whilst if cold nitrous oxide were given the majority were conscious up to the tenth, and some up to the twentieth, breath. Ether vapour when warmed is less disagreeable to inhale and is less irritating, so that it causes less secretion of mucus and saliva. Nausea and vomiting are stated to occur not so frequently, but large numbers of cases must be compared before this claim can be considered to have been definitely proved. My own impression is that vomiting is slightly less, but "open ether" has given us very good results upon which it will be hard to improve Certainly smaller doses of atropine can be used. Another advantage of the decreased irritating effect is that muscular spasm and congestion of the upper air passages are considerably diminished. Breathing is calmer and slower and very similar to the chloroform type, so that it is easier to secure quiet anæsthesia and good relaxation in difficult subjects. I find that an "airway" is seldom needed; either nasal respiration is adequate or a mouth prop, which separates the jaws to a slight extent, secures the desired type of breathing. There is not the same objection to the use of an artificial airway as in "open ether," where it introduces a cold vapour directly into and on to the laryngeal opening, increasing the risk of bronchitis, and I believe the liability to laryngeal spasm.

I wish to lay stress upon the superiority in the type of anæsthesia produced by a warm vapour, because my experience with this method has now been sufficiently large for me to speak with confidence, and because ease of breathing and the elimination of the asphyxial factor resulting from even a slight degree of obstruction are of such importance in the prevention of shock. Experience teaches this lesson daily, and intratracheal insufflation has proved conclusively that if there is one cardinal principle of anæsthesia which should be emphasised it is the value of a free airway and of complete oxygenation.[16] For these reasons, and because the loss of body heat is less with warm vapours, shock should be, and in my experience certainly is, diminished. Patients recover perhaps a little more quickly; this, again, is only to be expected, and Gwathmey's experiments point to the same conclusion, although their number is too small to be conclusive.

It seems likely that lung complications will be less frequent, not only because the loss of body heat is smaller and the patient's powers of resistance are therefore better conserved, but because the respiratory passages are not so liable to become invaded by mucus or to become infected owing to chilling. It may be that the warm ether of this method will have a wider field of usefulness, but it would be well at a time when there is a tendency to give ether to patients usually considered unsuitable for this anæsthetic, and a certain number of avoidable cases of bronchitis occur every year, to proceed with caution in this direction.

Since I have been using this method it has struck me very forcibly how much the idea of warming anæsthetic vapours, especially ether, appeals to onlookers, who cannot have failed to notice the low temperatures produced by the "open" method, and how wrong we have been, and still are with our present knowledge, in allowing our patients to inhale these cold atmospheres. It seems undeniable that this position is no longer justified. We must teach the principle of warm vapour anæsthesia and turn our energies to the development of this method along scientific lines and to the production of simple and practical apparatus. The administration of warm nitrous oxide and oxygen does not come within the scope of this paper.

The apparatus which I use consists of four principal parts—viz.: B, A hand-bellows of large capacity; E, an ether bottle; C, a Junker chloroform bottle; and W, a warming chamber (vacuum flask). E, C, and W are contained in metal stands connected together, that of C being detachable, and as well as that of E being of larger diameter than their respective bottles, so that they act as water-jackets to prevent excessive cooling of the anæsthetic.

In the cork of E are: (1) An efferent tube; (2) a filling funnel (F); and (3) a regulating tap (T), the long limb of which is plunged into the ether; perforations at the end of this limb break up the air current and prevent splashing of the ether. To the proximal of the two short limbs of T is attached the hand-bellows; the distal is connected by rubber tubing with the afferent tube of C. The efferent tubes of E and of C are connected by tubing to two branches on the afferent limb of U, which is a metal U-piece immersed in the warm water of W. The delivery tube of U carries 30 inches of rubber tubing.

By regulating the lever of T air can be pumped (*a*) through E, (*b*) through C, or (*c*) in varying proportions through E and C at the same time, so that the vapour of ether, of chloroform, or of mixtures of the two can be given. The anæsthetist will find it a great convenience if he is using chloroform and the colour is pallid or the breathing weak, to be able to add ether or substitute it entirely for a time. A very strong ether vapour can be obtained and can be made still stronger by placing warm water in the jacket. The hand-bellows is of such a size that it fills the hand comfortably, and continuous pumping is not wearisome. By squeezing it regularly with inspiration the anæsthetist soon acquires the habit of delivering a practically uniform dosage. He has two means of altering the strength of the vapour, one by regulation of the tap, the other by varying the vigour of his squeezing. Regularity of administration means evenness of anæsthesia, and this means an anæsthesia which can be kept lighter and yet efficient. A foot-bellows can be used if it is desired to give ether for nose or throat cases, as suggested by Stock,[14] or can be substituted for the hand-bellows in all cases; this particular pattern gives a continuous stream of air, and is therefore of advantage in that the anæsthetic is supplied in a more constant percentage than is possible with a hand-bellows. There are points for and against its use, and I have decided to employ it only in the special cases mentioned if intratracheal insufflation is not required.

About 6 or 8 ounces of ether should be placed in E; to empty it remove the stopper of F and slip off the tubing from the ether efferent tube, which then can be used as an outlet. If chloroform is not wanted, C and its jacket can be detached altogether if desired; the distal limb of T is then connected with the free branch of U. In this case all the air can be pumped through E, or any part of it, the rest going on to W. It has been my aim to make the apparatus as simple as possible; it is efficient and easy to use. The anæsthetist is independent of electric or other systems of heating, and can depend upon the temperature of the vapour remaining remarkably constant for a considerable period; it is very seldom necessary to change the water in the flask.

Anæsthesia is induced in any way thought desirable. My own plan is to give a preliminary injection of atropine, with or without morphine and scopolamine, and to induce with chloroform or a mixture, using a drop-bottle or the apparatus; in the latter case the end of the delivery tube is placed under the mask, which holds in its place, or passed through the domette covering it. It should not be attached to any connexion or metal tube, or much of the heat will be abstracted from the vapour; ether vapour quickly picks up and quickly loses heat. Beginning with chloroform, after a little time a mixture weak in ether can be given, then less chloroform and more ether, until finally pure ether is being administered. If induction is accompanied with struggling or with raising of the head and shoulders it is advisable to use a drop-bottle until quiet is obtained; the vapour method can then be used again. In whatever way induction is accomplished, when the time has arrived for the introduction of the warm ether vapour a flannel pad with opening for the nose and mouth is laid upon the face, the end of the tube is slipped under the pad, and a Schimmelbusch mask with two layers of domette is placed on top of it. For children or weakly patients one layer of domette is sufficient. Ether is pumped in cautiously, beginning with a weak vapour and gradually increasing the strength as tolerance is established, until the proper degree of anæsthesia is obtained. Occasionally it may be necessary to pump continuously for a short time, but, as already stated, regular pumping with or

just before inspiration is best. For mouth cases the tube is placed in a curved metal holder which rests between the teeth, or is attached to a soft rubber catheter which is passed down the nose to the edge of the soft palate.

The longest anæsthesia in my series of cases, which includes practically every operation, lasted 3 hours and 22 minutes, the operation being for removal of a malignant growth of the bowel from a young woman who had lost 3 stones in weight, was toxic and anæmic from malnutrition; 6 ounces of ether were used, the average temperature of the vapour being 86° F. This was a smaller consumption than usual, the patient being an easy subject to anæsthetise, but I feel that "open ether" could not have given me such a good result nor such a good recovery as was made, and I doubt very much whether it would have been wise to give a cold vapour, especially to this patient, for such a long abdominal operation.

The details of the following cases give a rough idea of the amount of ether used in different patients and operations:—

1. F., 29, vigorous, alcoholic. Morphine gr. 1/6, scopolamine gr. 1/150, atropine gr. 1/120. Struggling during induction with C.E. Appendicectomy, rectus incision. Deep anæsthesia, especially for suturing abdominal wall. 50 minutes; 4 ounces of ether.

2. M., 47, big powerful navvy, thick neck, double-chin. Morphine, &c., as in Case 1. Induction with C.E. and "open ether"; rather violent struggling; quiet easy anæsthesia. Plating left tibia. 46 minutes; 4 ounces 2 drachms of ether.

3. M., 16, tall, weedy. Morphine gr. 1/8, atropine gr. 1/150. A.C.E. for induction. Appendicectomy, followed by radical cure of left inguinal hernia. 33 minutes; 2 ounces 6 drachms.

4. F., 39, slight build. Morphine gr. 1/6, atropine gr. 1/100. Induction with C.E. Colectomy. Deep anæsthesia during whole operation; patient rather resistant to anæsthetic. 1 hour 36 minutes; 5½ ounces. Condition very good at end, patient warm and dry, pulse 76, good quality. A very similar result had been obtained a few days before in a young woman aged 22; colectomy; 1 hour 49 minutes; pulse at end 80. These and several other similar cases have helped to strengthen my feeling that it is a distinct advantage to warm the vapour of ether, chloroform, or of mixtures of the two.

5. M., 29, strong, active, intelligent, nervous temperament. Morphine, &c., as in Case 1. Sleepy. Easy induction with C.E. Exploration of abdomen, mid-line incision, followed by appendicectomy through same incision. Very difficult to obtain good relaxation at first, particularly during suturing of abdominal wall, peritoneal reflexes being strong; anæsthetic pushed, no corneal reflex, pupil big, jaw muscles slack. 1 hour 9 minutes; just over 4 ounces of ether used.

Careful tests have been made of the ether before and after use by the methods described by Finnemore.[17] No aldehydes have been found on any occasion, even after air has been pumped through the ether for several hours and although peroxides were shown to be present. The test for the latter impurity in the new British Pharmacopœia is very stringent, so that Finnemore says that freshly distilled ether will probably be found deficient after being kept for a month. It is obvious that only very few ethers can comply with this test, and although it is theoretically desirable that peroxides should be absent, it is not always practicable, and as long as they are only present in small amount, and aldehydes are completely absent, the ether can be safely used. My practice is to use the same ether twice, as many tests have shown me that it is only occasionally that peroxides are present after the first case, and then in very small amount.

At what temperature should the vapour be delivered? There is no need to warm it artificially in very hot weather above the room temperature; in cold weather 85°–90° F. will give good results, the higher level being better for patients who are feeble or shocked, or for operations which involve much exposure and loss of heat or much bleeding. Too much heat produces sweating and flushing of the face and neck, and an unusual amount of bleeding in the wound, due to dilatation of cutaneous vessels. The following observations illustrate the results that may be expected at different room temperatures, and with water at different temperatures:—

	Room temperature.	Water in flask.	Temperature of ether vapour at end of 30 in. of rubber tubing.
1.	82° F.	102° F.	87° F.
2.	75°–76°	96°	82°
3.	71°	105°	86°
5.*	67°	133°	90°

Compare with the following, and note the steady level maintained:—

4. 2.35 P.M.,	67·5° F.	117° F.	86° F.
2.40 ,,	68°	116°	86°
2.45 ,,	,,	116°	87°
2.50 ,,	,,	115°	86°
2.55 ,,	,,	113°	86°
3.00 ,,	,,	112°	85°
3.50 ,,	,,	111°	85°

* This result appears to contradict No. 4, but was taken after a slight alteration had been made in the apparatus which has the effect of lowering a few degrees the temperature of the vapour; in other words, results 1, 2, 3, and 4 are not strictly accurate, but serve as guides.

My thanks are due to those members of the staff of Guy's Hospital who have allowed me to use notes of their cases. The apparatus is made by Messrs. Mayer and Meltzer, Great Portland-street, W., who have taken great pains in carrying out my ideas.

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FLORA OF WOUNDS AND FLORA OF PUTREFACTION.

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IT seems established that wound infection goes through three phases:—

1. *A phase of numberless microbes, amongst which B. coliformis*[1] *are to be found.*—This group of microbes has not been described as a constant finding, but that, I believe, is mainly due to the fact that the soldiers come for observation too late, and the phase is one which passes quickly. (It is a pity that from the available literature it is not possible to see to what extent the B. paratyphosus and paracoli group have been found in wounds and what part they play.)

2. *A phase in which the B. coliformis disappear and the field is occupied by the anaerobic microbes*

[1] When I say B. coliformis I exclude the B. proteus and B. pyocyaneus for reasons clear to understand.

of putrefaction.—B. perfringens [Welchii], Sporogenes, B. X of Fleming,[2] B. tetani,[3] and others. This group has been constantly found.

3. *A phase of the reduction (most probably the pathogenic flora) in which cocci (streptococci[4] and staphylococci) only are present.*

The phases which I have previously described[5] as occurring in putrefaction of the intestinal wall and of the fæces were summarised as follows: (*a*) A phase in which the B. coliformis became predominant and very active. (*b*) A phase of the anaerobic ferments. B. coli disappears completely and leaves the field free to the anaerobic organisms. (*c*) A phase of the aerobic ferments. The anaerobic ferments have now completely disappeared and instead are found cocci and microbes of the B. subtilis group. I also established the fact that when B. proteus or B. pyocyaneus was present at the beginning of the process they persisted throughout the stage of putrefaction. I am of opinion that the coliform organism, described in wounds in the late phase, is one or other of these two microbes.

Of great interest are the findings of A. Fleming,[6] who has worked at the anaerobic organisms of wounds. He describes, amongst others, the so-called "wisp bacillus" and a Gram-negative anaerobic bacillus (p. 642); also an anaerobic streptococcus.[7] The first is the B. ramosus or a member of its group. The second is very probably the B. fragilis. Both have been described by Veillon[8] as constantly present in acute appendicitis. I have frequently isolated these organisms from cases of appendicitis, and in two instances from fæces. Both organisms give rise to considerable pus formation. Fleming's observations are interesting, first, because these microbes seem capable of true pathogenic action; and, secondly, because I have stated my opinion that they are normal inhabitants of the human intestine, in spite of the fact that it is difficult to isolate them from fæces.

It would seem to be established from what has been stated that—

1. A true putrefactive process, comparable to that which takes place *in vitro*, occurs in the wounds and that the three phases succeed each other in the wound as they do *in vitro*.

2. The fact of the presence of human intestinal flora at the beginning of the wound infection shows that the soldiers are infected from *fresh human fæces*.

As regards the first point, why should these same phases occur in putrefaction and in the wounds? There must certainly be some biological law which regulates the appearance and disappearance of the microbes. Two hypotheses may be considered First, that there is a nutritive mechanism which regulates the phases. This suggestion is without any experimental basis, because, for example, B. coli thrives very well on split albumin rendered soluble by B. putrificus. But, notwithstanding this fact, B. coli dies after a certain cycle and gives place to the putrefactive organisms. The second hypothesis is that the secretion products of certain organisms are dangerous to, or possibly stimulate the appearance of, others. Experiments *in vitro* do not uphold this explanation. Besides, if this hypothesis be true, why should organisms die in groups? On the other hand, if we follow the process of putrefaction we see that Phases 1 and 2, above described, present a common character—the enormous activity of the predominant microbes. The more active they are the more freely they produce toxins, ptomaines, &c., which, as is known, endanger their existence. In fact, the duration of life of a microbe is closely related to its activity, the products of its metabolism, and the mechanism of drainage. These facts and considerations of biological nature lead me to conclude that the very activity of those microbes in the different phases of putrefaction or in the process occurring in wounds brings them direct to suicide. The organisms which never die in the putrefactive process or in the wounds are the streptococci which at no stage in either case exhibit much activity.

As regards the second conclusion—viz., that the infection in trenches is due to fresh human fæces—I was able through the kindness of Colonel D. Hepburn, R.A.M.C.(T.), commanding the 3rd Western General Hospital (Professor of Anatomy, University College, Cardiff), to make some inquiries amongst wounded soldiers. They all told me that the rules about defæcation are very strict, that the fæces are disinfected, but that nevertheless the men often defæcate in the open. I was told that cleansing after defæcation could not always be carried out owing to lack of paper. It is easy to imagine the case of a soldier who has a wound and anal pruritus. Digital conveyance under these circumstances readily occurs and a complete cycle of infection is set up. (It would seem to be an easy matter to distribute a small bottle of lysol solution and a sponge.)

There is, from these observations, good reason to believe that either the occurrence of defæcation in the open, or inefficiency of sterilisation of fæces, or personal filth has some relation to the described bacterial flora in wounds. The phases described necessarily take a certain period of time for their completion, and this is one of the reasons why specific therapy has given unsatisfactory results. The sequence is still somewhat obscure and demands further investigation, but, of course, prevention of wound contamination by fæcal material ought to be aimed at.

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[2] Fleming's B. X is the B. anaerobicus alcaligines which was described by De Bono in the Centralblatt für Bakteriologie, vol. lxii., 1912, Heft 3/4.

[3] B. tetani has been frequently described in the wounds, although no clinical evidences of tetanus may have been observed. Attention may here be drawn to B. putrificus filamentosus, for example, which morphologically closely resembles B. tetani (Centr. f. Bakt., vol. lix., 1911).

[4] Sir A. E. Wright points out that the streptococcus isolated in wounds has not the same character as the S. pyogenes. It has a saddle-bag shape. This streptococcus is a common organism in fæces, but it is not the S. fæcalis. In order to isolate this wound-streptococcus I proceeded to incubate fæces to the stage of putrefaction and when all other microbes had disappeared I was able to isolate on Drigalski three or four different kinds of streptococci. In many cases a streptococcus was obtained which was without action on lactose. This work was communicated to the Centralblatt für Bakteriologie just before the war, and I am unable to say what has become of the article. (See THE LANCET, Oct. 30th, 1915, p. 959.)

[5] Centr. f. Bak., vol. lxii., Heft 3/4.

[6] THE LANCET, Sept. 18th, 1915, p. 638.

[7] This streptococcus was first isolated by Jungano from fæces and urine. Owing to a printer's error it was not included in our book "Les Anaerobies" (Masson, Paris, 1910).

[8] Les Anaerobies, Masson, Paris, 1910.

MEMORIAL TO THE LATE MAJOR E. B. STEEL, R.A.M.C.—At Dr. Steevens' Hospital on St. Thomas's Day, Dec. 21st, the Archbishop of Dublin dedicated a lectern placed in the chapel of the hospital by the governors and staff to the memory of Major Steel, who died on Nov. 23rd, 1914, from wounds received in action. An obituary notice appeared in our columns (vol. ii., 1914, p. 1388). For several years he was a resident pupil at Dr. Steevens' Hospital, and the thoroughness of his work and sterling qualities of his character endeared him to a large number of friends.

THE SIMPSON LIGHT:

ITS NATURE, MODE OF PRODUCTION, AND APPLICATION, WITH A PRELIMINARY NOTE ON ITS THERAPEUTIC PROPERTIES.

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WHAT is known as the Simpson light is the light emitted from an electric arc formed between electrodes of special composition. These electrodes are made by a special process from a mixture of the ores of certain metals, the chief one being a tungstate of iron and manganese, known as *wolfram*. These electrodes are the special feature of the Simpson lamp, and they confer upon the light the properties that distinguish it from that produced by the more familiar type of arc lamp, in which the electrodes are made of gas-carbon.

Mr. Simpson, who was making a research on the affinity of rare metals for each other, noted that the light produced by the electric combustion of certain ores had "curative effects on the workmen's hands." He then proceeded to prepare from these ores electrodes suitable for combustion in an electric arc lamp. This proved to be a very difficult matter, and the most suitable composition has not yet been fully determined. To procure steady combustion in the arc has been the most difficult problem.

Nature of the Simpson light.—The Simpson light is made up of rays of two kinds: 1. *Visible rays:* These are the visible rays of the luminous spectrum, violet, blue, green, &c., down to red; these rays together produce white light. 2. *Invisible rays:* These are *heat rays* and *ultra-violet rays.* It is to the latter that the therapeutic properties of the light are mainly due. The physical properties of the light have been investigated by Professor Burstall and Professor Horton. Professor Horton reports that the arc is an "extremely powerful source of ultra-violet light." This was tested by experiment. A spectrum of the light, obtained by means of a quartz prism, was cast on a sheet of white paper. The colours of the visible spectrum were then seen, while the ultra-violet rays were rendered visible by allowing them to fall on a fluorescent screen. The violet end of the visible spectrum was thus seen merging into the fluorescent spectrum of the ultra-violet rays. These spectra were compared with those yielded by the light from an arc between carbon electrodes. It was seen that the ultra-violet light from the Simpson lamp caused a much stronger fluorescence than that from the carbon arc lamp, and that the *length* of the fluorescent spectrum was very nearly double that of the fluorescent spectrum of the carbon arc lamp. The Simpson lamp, therefore, produces a more intense ultra-violet light than that emitted by a carbon arc lamp, such as the Finsen lamp. Further, the light ranges nearly twice as far into the ultra-violet region, so that some of the component rays have a shorter wave-length than those produced by the carbon arc lamp. Professor Horton also made comparisons between the new arc and the arc obtained under similar conditions with electrodes of other metals known to be good as sources of ultra-violet light. The metals used were aluminium, zinc, and cadmium, but in every case the radiation from the new arc was considerably more powerful.

The light from the Simpson lamp has, therefore, two claims for clinical investigation: one by reason of its greater richness in ultra-violet rays; the other by reason of the presence of rays of shorter wave-length. Ethereal waves of different length have different physiological and therapeutic properties. This is quite evident when the difference is very great, as is the case with visible rays and ultra-violet rays, and ultra-violet rays and X rays. But it is also true when the difference in wave-length is much less. Thus the waves at the violet end of the spectrum are only one-half the length of those at the red end, yet the former have strong chemical (actinic) action and feeble thermal action, while the reverse is true in the case of the latter. In the ultra-violet region the shortest measured waves are one-eighth of the length of the longest. The range of the ultra-violet spectrum is, therefore, four times that of the visible spectrum. Arcs formed between carbon electrodes, iron electrodes, silver electrodes, and others all give out ultra-violet rays, but they have not all identical properties. Thus, the light emitted from the arc between silver electrodes has a selective action on the various micro-organisms of the coli group, destroying or inhibiting some, not others. The ultra-violet rays emitted from an arc between carbon or iron electrodes do not possess this property. The essential difference between the rays lies in the length of the waves. The therapeutic action of the Simpson light is due mainly to the ultra-violet rays. Such action that this light can produce more effectively than other ultra-violet light is due to its great richness in ultra-violet rays, and such action that is found to be peculiar to this light is to be attributed to the presence in it of waves of shorter length.

The Simpson lamp.—The lamp is quite simple. The electrodes are secured in metal holders and by means of a hand-screw their points can be brought into contact or separated as far as desired. In one design of lamp there is a plane reflector; in another a parabolic mirror is placed behind the arc so that the reflected rays are brought to a focus. A metal tray or similar device is attached to the front part of the lamp so as to catch incandescent particles thrown off from the arc when the lamp is burning. The lamp is mounted on a metal stand which can be raised or lowered or otherwise adjusted so that the light can be directed where desired.

A current of from 5 to 7 ampères is required. When the electrodes are brought into contact and then slightly separated a brilliant arc is produced. It is not a steady arc like that formed between carbon electrodes, but it splutters and occasionally it goes out. This is because molten slag forms at the incandescent points and sometimes makes a connexion between them. The points have then to be further separated and readjusted. When the lamp is burning a white smoke forms and collects as a white sublimate on adjacent parts of the lamp and on other objects in the room.

Modes of application of the light.—The light may be applied in one of three ways. In the "open-arc" method the lamp with the plane mirror is used and the electrodes are placed 12 to 15 inches from the skin. The light is applied for two minutes to begin with; afterwards the exposure may be increased to

three, four, or five minutes according to the reaction observed in the skin after the first exposure. The open-arc method is suitable when large areas have to be treated. In the "focussed-arc" method the lamp with the parabolic reflector is used and the area to be treated is placed at the focus of the reflected rays. This method is suitable for small lesions. In the "medium focussed-arc" method the rays are reflected to a blunter focus, so that areas of medium size can be treated.

The vapour produced during the burning of the lamp has also been used for the treatment of affections of the respiratory passages. A hood is fixed to the open-arc lamp and the vapour which escapes from the narrow end of it is inhaled through the mouth or nose.

Physiological effects following the exposure.—The application of the Simpson light, in therapeutic doses, frequently produces an erythema. It appears five or six hours, as a rule, after the exposure. If the exposure is prolonged the erythema is more intense, and the skin may subsequently "peel." The erythema is not of long duration, and no bad effects have been noticed. The eyes of the patient should be covered by some opaque material (cotton-wool pads are suitable), and the operator should wear blue lead-glass spectacles, otherwise a painful conjunctivitis will be produced.

Experience with the Simpson light.—An outfit for the production of the light was installed in the electrical department at St. Bartholomew's Hospital in July, 1915, and a number of cases with various types of disease have been treated. There seems little doubt that the Simpson light will be useful in the treatment of some of the diseases of the throat and nose. A variety of cases have been treated and satisfactory results obtained in some of them. The following cases may be shortly described:—

Rodent ulcer.—The patient in this case had suffered for five years. The greater part of the side of the face and upper jaw had been destroyed by the disease. He had received various treatments at other hospitals. The cavity was filled with nodular growth and was suppurating profusely. Under treatment with the Simpson light the ulceration improved rapidly. After three months, during which time he had 44 treatments, the local condition was greatly benefited—suppuration ceased and in many parts the cavity was lined by healthy epithelium.

Lupus.—Four cases have been under treatment, one an old-standing disease affecting the tip of the nose and vestibules. This patient had been under treatment off and on for three years. After 16 applications the lupus was apparently cured. The second case had extensive ulceration of the floor of the mouth, the tongue, gums, pharynx, larynx, and epiglottis. She had been under treatment with tuberculin, ionisation, &c., for two years but without improvement. After 33 treatments with the Simpson light the floor of the mouth was completely healed, the tongue, gums, and pharynx were better, the condition of the larynx unchanged. The third case, in which the anterior part of the nose and septum were ulcerated, was greatly benefited by 31 treatments extending over a period of five months. The fourth case has just commenced treatment and appears to be making progress.

Syphilis.—Up to the present only one case has been treated at St. Bartholomew's. The ulceration quickly improved, but the patient was also treated with mercury and salvarsan. Major E. G. Ffrench, R.A.M.C., who has had considerable experience of this treatment in the primary and secondary stages of the disease, stated at a meeting of the Royal Society of Medicine in November, 1915 (Laryngological Section), that he was of opinion that treatment by the Simpson light if combined with other syphilitic remedies definitely shortened the period of recovery.[1]

[1] See Proceedings of the Royal Society of Medicine.

Asthma.—It has been stated that cases of asthma are materially benefited by the Simpson light. A patient who had suffered from severe asthma, nasal catarrh, and polypi for five years, during which time his disease had made steady progress, has recently been treated with the Simpson light. After 44 inhalations of the vapour during a period of four months he is now in a better state of health and is able to do full work. During the last six weeks he has been practically free from attacks. There seems little doubt that in this case a definite improvement has been obtained with the treatment.

Vaso-motor rhinitis.—Two cases have been under treatment for a short time, and in both of them there has been a moderate degree of improvement.

Nasal catarrh and sinusitis.—Three cases have received prolonged treatment of from three to six months, but without any definite results.

Otosclerosis.—One patient is under treatment and states that she is hearing better. It is doubtful, however, whether this will be a permanent result.

A number of cases of disease of other parts have been treated, and good results have been obtained with some.

Eczema.—A patient, aged 35, suffered from intense itching and pain in the fingers of both hands that had resisted other forms of treatment for nine months. The eruption was distributed on the dorsal aspect of the fingers and hands, and on both palms. Sixteen applications of the Simpson light were made over a period of 20 days. The open arc was used, and exposures of one minute each to back and front of hand and fingers. Nothing was observed until the day after the fifth exposure, when the itching increased and the discharge became more abundant. After a rest of three days the treatment was resumed daily. The itching and discharge then lessened, and on the twentieth day they had disappeared together with the eruption.

Lupus.—The patient, aged 5, had an area on the right leg, not ulcerated, measuring 2 inches by 2 inches. Thirty-one exposures to the Simpson light (open arc) were given over a period of 15 weeks. The length of exposure was gradually increased till, at the end of 11 weeks, its duration was seven minutes. It was then gradually diminished to three minutes. The patient is still under treatment. The whole area of skin with the exception of a patch ¼ inch in diameter has healed. It is slightly pigmented. The patient had previously received local medicinal treatment, but without avail.

Rodent ulcer.—The patient was aged 47. The ulcer was situated on the lower eyelid. It had been treated by X rays and had healed, but 11 months later it reappeared. When seen it measured ¾ inch by ¼ inch. Six applications of the Simpson light were made during 28 days. The focussed arc was used and exposures of two and a half minutes were given. The ulcer healed and was covered by soft supple skin.

The Simpson light seems to stimulate the healing of wounds. Cases of shrapnel wound have been tried and have benefited from the treatment. When disease affects the deep parts or subcutaneous parts there is usually, though not always, no benefit. Cases of rheumatoid arthritis have been treated, usually without providing relief, although some patients with the disease affecting the finger-joints have said that their pain has been greatly relieved. One patient with considerable swelling of both sides of the neck caused by tuberculous glands (without sinuses) has been greatly improved, there being no evident swelling on one side and a much diminished swelling on the other. A case of exophthalmic goitre was treated, but without beneficial result. Some inoperable malignant ulcerated growths have been exposed to the rays. In some of these pain has been relieved, but, excepting the cases of the rodent ulcer mentioned earlier, without any other benefit.

The method is at present in its infancy, and it is too early to form any opinion as to the value of the Simpson light in the treatment of the different

diseases. The first impression obtained, however, is a promising one. It seems probable that the light will be of distinct value in the treatment of superficial ulcerations, especially those which are of a purulent character. Investigations should be made to determine how this light compares with other arc lamps. The exposure required with it is a short one which is an obvious advantage. It seems possible that in some diseases cures will be obtained more quickly than with other treatments. Beyond a slight reaction, which is quite definite when a long exposure has been given, no bad results have been seen.

HYPERTHYROIDISM AS A CAUSE OF THE IRRITABLE HEART OF SOLDIERS.

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AND
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THE following cases seem to us worth recording as they may explain many of the so-called "irritable hearts" which are now so common in men home from the front.

CASE 1.—The patient, aged 28, admitted into the Herbert Samuelson Hospital for Officers, and first seen by one of us (C. P. W.) on April 13th, 1915, had been at the front for eight months, and had there been subjected to great strain. As all his work had to be done at night he had been very short of sleep. He complained of palpitation, the pulse even in bed varying between 90 and 100 per minute, though quite regular. There was no cardiac murmur; the apex was in the nipple line. The temperature was slightly raised; he suffered much from sleeplessness. He improved to a certain extent while in hospital and left on May 6th to go home and to lie in the open air. He did fairly well until the middle of August, when he became very breathless and was hardly able to walk a hundred yards. He came under observation again on Sept. 30th. I had seen him only once since he left London, and I was much struck with the change. The thyroid gland was enlarged, he had well-marked Stellwag's sign, fine tremor of the hands, a pulse-rate of 120, apex in nipple line, and no murmur. He was breathless on the slightest exertion. All the typical signs of Graves's disease were present; he came into hospital again. The pulse-rate after a few days' complete rest varied from 98 to 84, and the respirations were 28 to 34 per minute.

After three weeks' rest in bed one of us (F. H.-J.) gave him some X ray treatment. Sittings were three times weekly, and it was only possible to give seven in all. The patient then said that he felt so much improved that he considered himself equal to travelling north to attend to urgent business affairs. It is difficult to say how much of this alleged improvement was imagined as the result of the patient's wish to escape. All that can be said on the physical side is that during the last few days while he was up the pulse was no worse than when he had been confined to bed. In civil practice a few cases certainly do show definite benefit from X rays in a fortnight, but a month is generally necessary for any effect to be seen.

CASE 2.—The patient had been wounded at the base of the neck and the left shoulder (June 28th) after two months' compaigning in Gallipoli, during which time he was under fire the whole time. He was confined to bed between two and three weeks. As soon as he was allowed to get up he began to be troubled with profuse sweats. He slept badly and felt restless and unsettled. His legs "seemed scarcely to belong to him," and any exertion made him breathless. He was first seen by one of us (F. H.-J.) early in September, when he still complained of all the above symptoms, though, of course, in somewhat less degree than when he first got up. He thought, however, that there had been no improvement for a month or more. He complained much of aching in the wound, which, though healed, presented an angry-looking scar. To look beyond the natural effects of exposure, shock, and continued pain to furnish an explanation of the symptoms had not been thought of. Consequently treatment by high-frequency vacuum electrode was prescribed for the neck and shoulder, together with the sinusoidal bath as a general tonic. Under this treatment the pain lessened, but the general condition remained unimproved. He complained of night sweats which left him limp in the morning. Belladonna was prescribed for these, and it produced some improvement. So matters stood at the beginning of October, when it was thought desirable to re-examine the patient carefully in the light of Case 1. There was slight exophthalmos, definite enough when looked for; also the pulse was 120. The hands showed tremors when held out. The thyroid gland was definitely enlarged, and pulsation was distinctly visible. The clinical picture was thus illuminated as by a flash, and the whole of the symptoms fell into their proper place. It was, in fact, a typical, and—rightly looked at—obvious case of Graves's disease. Exophthalmos, enlarged and pulsating gland, tremors, sweatings, tachycardia, breathlessness, irritability—nothing was lacking.

The patient was doing light duty, which he was very anxious not to relinquish. He was unwillingly allowed to continue this for a time while X rays were being tried. He has had treatment for two months. The pulse is 100. Sweating is now of very occasional occurrence. The tremor has gone. The thyroid gland is smaller in size, and there is very little pulsation. Exophthalmos remains unchanged, but it was never very marked. The patient states that he feels himself to be making progress every week.

CASE 3.—The patient, aged 40 years, had in February, 1915, been sent to Egypt. At that time he felt in perfect health, and carried out all his duties for a period of three months. His work was of an extremely arduous nature, and he began to feel the heat very much about the beginning of May. Towards the end of that month he began to feel unsteady on his legs and to be troubled with shortness of breath. He was sent home in July, and was first seen by one of us (F. H.-J.) on Oct. 1st. At that time there was marked exophthalmos, and fine tremor in the hands, which felt clammy to the touch. The pulse-rate was not markedly high (84). The patient was doing a certain amount of duty, and his chief complaint was that the least extra exertion made him short of breath.

X ray treatment was commenced and was given three times a week. The patient announced an improvement after four weeks. In two months he stated definitely that he could go upstairs without feeling "puffed," and that he felt it would not be very long before he was fit for full duty.

With regard to the first of these cases, the interest of it lies in the fact that many cases of irritable heart may be explained by a condition of hyperthyroidism, a sort of pre-Graves condition: the rapid pulse, sleeplessness, and tremor being the only signs present. We know that prolonged strain and shock are common predisposing causes of exophthalmic goitre, and these factors are, of course, present in marked degree in most instances of so-called "soldier's heart."

The patient in Case 2, although showing all the typical signs of Graves's disease early in October, had been seen by several medical men since he was invalided home without the diagnosis being arrived at. It is probable that the full clinical picture developed gradually, and that, had one been on the alert, the condition could have been recognised at an earlier date and treated accordingly.

Case 3 provides a kind of link between the Graves's disease of civil practice and that presumably brought on by the rigors of active service. This patient had not actually been under fire, and, of course, his trouble might have developed in any event.

There was no sort of *a priori* certainty that the same excellent results obtainable by X rays in

ordinary cases could be duplicated in the "military" form of the disease; but, so far as our experience has gone, this treatment appears beneficial.

It is to be specially noted that the patients in Cases 2 and 3 continued to do a certain amount of duty. That the third patient should be practically cured and the second very much improved in two months under such circumstances may, we think, be considered encouraging; but it is probable that rest is even more desirable in military cases than in those occurring in private practice.

The treatment of irritable heart in soldiers has hitherto been decidedly of an "expectant" nature, and it would at least seem reasonable that in all cases where there is a suspicion of hyperthyroidism X rays should be tried, other suitable measures, of course, not being neglected. We are of opinion that investigation and treatment on the lines above suggested will alter for the better the prognosis in the type of case known at present as "irritable heart of soldiers."

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CASE OF SHRAPNEL INJURY TO RIGHT PARIETAL CORTEX,

SHOWING PARESIS OF LEFT LOWER EXTREMITY, TOGETHER WITH CORTICAL SENSORY LOSS AND THALAMIC OVER-RESPONSE.

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AND
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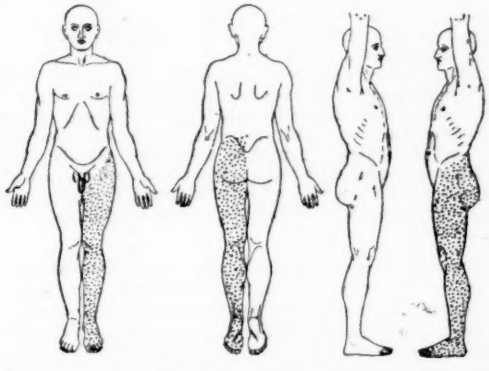
LIEUTENANT, R.A.M.C.

WE consider that the following case is of sufficient interest to publish as it shows a comparatively rare combination. There are two definite sensory changes to be distinguished. First, there is the sensory loss due to functional disturbance probably of a circulatory nature arising from local pressure on the post-Rolandic cortex. This accounts for the loss of posture, the inability to distinguish compass points, the persistence of deep touch, and possibly for the blunting of cotton-wool touch over hairless areas. On the other hand, we have to consider the over-reaction to stimuli of an affective nature such as heavy prick and stroking. This is of thalamic origin, and is explained by the throwing out of action of the cortex which normally exerts an inhibitory influence over the thalamus. The reason why thalamic over-response is seldom a well-marked feature of the cortical sensory lesions seen in this war it is difficult to say; in this case the amount of brain damage was small and the consequent shock slight—a possible explanation. The area determined by the line of change is interesting in that it approximates more closely to a "mind" or hysterical loss than any other area due to an organic lesion. On the motor side the involuntary movements are undoubtedly of reflex origin, and probably represent the efferent expression of the thalamic level. In support of this hypothesis we have their relation to affective stimuli, especially when arising from the mucous membrane of the glans penis. As such they are comparable to the well-known involuntary movements which accompany certain emotional states, such as shyness.

Private —— was admitted to a general hospital on July 31st, 1915, suffering from a wound of the head received on the 26th. He gave a history that after being hit by shrapnel he was unconscious for about 10 minutes. He was carried to a dressing station, being unable to walk on account of weakness and numbness of the left leg. Since then he had complained of numbness of the left leg and headache. On admission there was a small perforating wound at $8\frac{1}{2}/14\frac{1}{2}$" ..... $1\frac{1}{4}$" to the right of the middle line. There was no œdema of the scalp or tenderness of underlying bone. The X ray showed two pieces of metal in the outer table of the skull in the posterior parietal region with a depressed fracture below. Examination of the nervous system revealed no abnormal changes in the eye movements, the pupils, or the visual fields; the face and tongue were straight, there was no weakness or ataxia of either upper extremity. The right lower extremity reacted normally to all tests. In the left lower extremity all movements were possible, but there was definite weakness of the toes, and the extensor longus digitorum was observed to act more strongly when the patient dorsi-flexed the ankle than when he attempted to extend the toes. On the left side the knee-jerk was exaggerated, ankle clonus was just obtained; the plantar reflex was extensor and the abdominal was abolished.



Over the dotted area shown in the chart there was marked over-reaction to pin-prick, and passing from above downwards the line of change was quite definite; over the whole limb moderate prick was less "sharp," and heavy prick more painful than on the right side. Over the hairless areas of the leg and foot there was blunting to cotton-wool touch; cotton-wool over hairs was well appreciated, but felt different from the right side. Temperature sense, vibration on bone and on pinched up skin were normal. There was considerable persistence of deep touch from the sole, and compass points could not be distinguished at 6 cm. along the inner border of the foot. The position of the hip and knee was impaired, and there was complete loss of position of toes. Localisation was accurate. Spontaneous movements of an irregular and jerky character affecting the whole limb occurred from time to time or could be elicited by any painful stimulus applied to the leg or by gently stroking the limb with cotton-wool; these movements were, however, most marked on tickling the sole of the foot or on gently pricking the left side of the glans penis, the latter causing great discomfort to the patient. Stimulation of the sole gave a feeling like an electric current passing through the leg.

On August 2nd an operation was performed. A penetrating wound of the outer table was found with depression of the inner table; a blood clot occupied the interval between the two tables. The depressed portion of bone measured $\frac{1}{4}$ inch by $\frac{3}{8}$ inch, and was driven down on to the dura to the extent of about a quarter of an inch. The dura was intact. After operation the sensory changes began to clear up rapidly. On the patient's discharge to England on August 13th he reacted normally to gross tests.

TRAUMATIC DISLOCATION OF THE HIP-JOINT IN A CHILD.

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IT is well known that the occurrence of traumatic dislocation of the hip-joint in children is a very rare event. We recently had an opportunity of seeing this condition in a child.

The patient was a boy aged 6 years. When running down a hill he slipped, fell forward on to his face, and rolled over and over several times. He felt something "give" in his left hip. The mother brought him to the Ancoats Hospital within an hour of the accident. It was impossible to obtain an accurate description of the exact violence and the position of the limb at the time. The left lower limb was held in a position of flexion, adduction and inversion at the hip. The limb was obviously shortened and the trochanter unduly prominent. On palpation the trochanter was found to be elevated above Nélaton's line and the head of the femur could be felt on the dorsum ilii. There were no signs of bruising and no crepitus was elicited. Under anæsthesia the dislocation was reduced with ease by flexing the limb on the abdomen and then abducting as in the Ridlon method of reducing a congenital dislocation. A long Liston splint was then applied. An X ray plate taken after reduction showed no local anatomical abnormality which might have predisposed to dislocation, the femoral heads and acetabula being perfectly symmetrical. At the end of three weeks the splint was discarded and the boy was allowed to kick his leg about in bed at will. He rapidly gained mobility in the affected joint. When seen two months after the accident he was walking without perceptible limp. The hip showed full range of motion, and there was no pain or instability.

Boehnke[1] has collected from the literature 29 cases of traumatic dislocation of the hip-joint in children, and has described a case of his own. It is probable, however, that this condition is hardly as rare as these figures would suggest, for it is only long-standing cases and those which give trouble in reduction which are likely to be recorded. The case reported by Boehnke is typical of the majority of the published cases—viz., a child aged 6 years seen 11 weeks after the injury, and in which arthrotomy was required to effect reduction after failure of manipulations. In the above series of cases 23 were posterior and seven anterior dislocations, proportions which correspond to those usually given for hip dislocations in general. It is interesting to note in these cases the relationship of the duration of the displacement to the feasibility of performing bloodless reduction. In most instances an open operation was necessary after three weeks, though in two cases (quoted by Endlich) reduction was obtained by manipulations six and a half weeks and three months after the injury respectively. On the other hand, bloodless reposition failed in two cases which had existed 14 days only (Helferich, Hirsch). As the small number of dislocations recorded were under the care of almost as many different surgeons, there would be no uniform standard of skill. The chances of success in either method of reduction in long-standing dislocations will be dependent on the training and experience of the operator in dealing with congenital cases.

[1] Boehnke: Archiv f. Klin. Chirurg., November, 1913, p. 1077.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF PSYCHIATRY.

Clinical Evening.

A CLINICAL meeting of this section was held on Dec. 14th, 1915, at Bethlem Royal Hospital, Dr. F. W. MOTT, the President, being in the chair.

Dr. J. P. PHILLIPS demonstrated a female married patient, aged 54, who was admitted four months ago after a mental illness of six weeks, supposed to have been due to onset of the menopause. Her husband stated that she began, after hard social work, to lose power of concentration; she was unable to control the movements of her hands and believed that people were against her. On admission her physical condition was very poor; she was confused, could not converse, and was very restless and dirty in her habits. Her reflexes were normal, with the exception of exaggerated knee-jerks. A fortnight after admission she was found to be comatose, having apparently had a seizure, and shortly afterwards had another, epileptiform in character; the temperature just afterwards rose to 101·4° F. Treatment was followed by marked improvement, and she had lucid intervals. Before lumbar puncture was carried out she was very restless and confused in her ideas, her speech was slurred, she had tremors of hands and lips, hallucinations of hearing, pupils reacted sluggishly to light, and her movements were somewhat incoördinated. On these symptoms general paralysis was suspected. Since lumbar puncture was done there was much improvement, and the idea of general paralysis of the insane was negatived. There was an absence of lymphocytes, and Wassermann and the biochemical tests were negative.—Sir GEORGE SAVAGE said he had seen cases of chronic mental disorder develop fits on occasion, of an epileptiform character, and he raised the question as to whether that meant a further degeneration of the brain, and a grave prognosis.—The PRESIDENT noted that the thyroid was enlarged, the skin was dry, and the hair scanty. In some cases, however, the enlargement turned out to be a pseudo-hypertrophy. He had described some cases in which the mental symptoms were due to hypothyroidism, but the improvement after lumbar puncture excluded the present case from that group. If there should be any relapse, he thought thyroid treatment might be tried.—Dr. J. N. SERGEANT, who saw the case earlier, said the patient was much worried about her supposed unworthiness and doubted whether she had done her best for her children and home.

Dr. PHILLIPS also showed a single woman, aged 23, the subject of hysteria. Two years ago she had a nervous breakdown, due, it was supposed, to a love affair. From this she partially recovered. For five months she suffered from anæmia and indigestion, and when discharged from the hospital in the provinces where she was a voluntary boarder, she was unable or refused to walk. She complained of headache, could not occupy herself, threatened suicide, and was impulsive. Last June she was certified, and at that date she suffered from insomnia, noises in the head, and continuous dull headache. She was also very thin and weak and emotional, and suffered from tachycardia. She also had hesitating speech and an unsteady gait. She was now much better, but he regarded the case as on the borderline of insanity.—Dr. ERNEST JONES did not see any evidence of any variety of psychosis in this case. It seemed to present the clinical picture of an anxiety hysteria; the symptoms and the whole course of the case seemed to support that view.

The next case shown by Dr. PHILLIPS was that of a man aged 57, whose illness was attributed to excessive work and worry. He had melancholia 15 years ago, when he attempted suicide by drowning. Two months ago he walked out of a window on the second floor of his house. When admitted last month he complained of depression, with pains in his head and back; there was marked tremor of the hands and lips, slowness of speech, and asthenia. Glycosuria had been present, in degrees varying between 0·5 and 2 per cent. There had been no improvement, and

he now suffered from hallucinations of hearing, and his pupils exhibited a sluggish reaction to light. Lumbar puncture had been done, and the examination was negative.—Sir GEORGE SAVAGE reminded the section of the observation of Dr. Maudsley that there was an alternation between glycosuria and melancholia, which he (Sir George Savage) had amply confirmed. If diabetics had mental disorder, they usually lost the sugar in the urine. In one particular case at Bethlem no sugar could be found in the urine as long as the patient was excited, but it reappeared in the intervals.—The PRESIDENT pointed out that the determining factor in deciding whether it was a toxic condition was the presence of aceto-acetic acid or acetone in the urine. (Dr. Phillips had said those substances were not present in this case.) With regard to the Wassermann reaction, in 97 per cent. of cases of general paralysis the cerebro-spinal fluid gave a positive result, and in the serum in 98 per cent. Clinically he did not regard either this or the first case as general paralysis. He suggested that attendants should be instructed to describe exactly the kind of fit patients had when a medical man was not near; it would prove of great service.

Dr. SERGEANT exhibited a male patient, aged 41, who was certified in consequence of a condition of acute mania, following excessive drinking and the use of drugs. He first showed abnormal suspicion, melancholia, and refusal of food. He now had ideas of persecution based on hallucinations of smell and taste. Lucid intervals, however, occurred, during which memory, perception, and orientation seemed unimpaired. While the compound fracture which he sustained by jumping off the top of an omnibus was in a bad condition the mental condition seemed clear, but since the healing of the leg condition he had been imitative and worse mentally, as if he were trying to live up to the reputation he had entered upon. Once he kept silent for 42 days, but at times he was strongly imitative and quick-witted.—Dr. PHILLIPS thought the various phases the case had passed through justified the opinion that it was maniacal depressive insanity.—Dr. BERNARD HART inclined to the diagnosis of dementia præcox, for the patient's history as a youth, and the fact that he had never had any occupation, favoured the idea that the abnormal mentality dated back a considerable time.—Dr. T. SEYMOUR TUKE agreed with Dr. Hart, and spoke of a similar case in his own experience. His prognosis was not hopeful.—Dr. HART, in further comment, said it was a well-known fact that in many cases the dementia was much less than it appeared. He had carried out intelligence tests in a considerable series of cases, carefully graded, and the general opinion of medical observers placed the cases much lower in the scale of intelligence than the tests showed they deserved. The dementia seemed to be pronounced because the patients were shut off from their surroundings. Sometimes a case of dementia præcox would, after a number of years, wake up and show surprising intelligence, a state of things which did not occur in the organic dementias.

Dr. SERGEANT also showed a female, aged 40, whose mental illness dated from pneumonia and pleurisy following influenza 21 months ago. She was very restless, slept badly, complained of headache, was sensitive, irritable, and expressed a wish for self-destruction. She had occasional auditory hallucinations, and though formerly an ideal wife, she was now quite apathetic about her family.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society was held at St. John's Hospital for Diseases of the Skin on Dec. 21st, 1915, Dr. J. L. Bunch, the President, being in the chair.—The President showed a case of Bichromate Dermatitis in a man, aged 81, who had peculiar purpuric lesions present on the left hand.—Dr. W. Knowsley Sibley showed a case of Actinomycosis in a man aged 37.—Mr. C. R. Kempster showed a man who had received a scratch on the left ear with a piece of barbed wire three years ago. Ten weeks ago he had a large fungating cauliflower growth present in this region; a section was examined and was found to be an epithelioma. The patient had been treated with X ray, 10 applications, full pastille doses, and the lesion had practically disappeared.—Dr. R. Prosser White (Wigan) read a paper entitled "Some New Forms of Occupational Dermatitis"

Reviews and Notices of Books.

Oral Surgery: A Treatise on the Diseases, Injuries, and Malformations of the Mouth and Associated Parts.

By TRUMAN W. BROPHY, M.D., D.D.S., LL.D., Sc.D., F.A.C.S., President and Professor of Oral Surgery, Chicago College of Dental Surgery. With Special Chapters by MATTHEW H. CRYER, M.D., G. HUDSON MAKUEN, M.D., WILLIAM J. YOUNGER, M.D., F. W. BELKNAP, M.D., CALVIN S. CASE, M.D., D.D.S. With 909 illustrations, including 39 plates in colour. London: Henry Kimpton. 1916. In two volumes. Pp. 1090. Price 2 guineas.

To appreciate this volume it must be recognised that though it will prove of interest and value to most surgeons, yet it is primarily intended for the dental student, many of whom do not study medicine. Accordingly it is prefaced by a general description of the principles of surgery. We find here accounts of surgical bacteriology and infections; there are chapters on syphilis and tuberculosis, on wounds, antisepsis, hæmorrhage and anæsthesia; fractures and dislocations, and diseases of bones and tumours are the subjects of some of the chapters, and in our opinion this introductory material is very well put together. Then we come to that portion of the work which is more particularly concerned with the mouth. We have chapters on the infections of oral origin, the diseases of the tongue and of the tonsils, dislocation of the jaw and ankylosis of the temporo-maxillary joint, the extraction and transplantation of teeth, cysts and tumours of the jaws, trigeminal neuralgia and diseases of the salivary glands. The most important chapters, however, are those which deal with hare-lip and cleft palate, and these are indeed valuable, for while much of the book could have been written from the experiences of a surgeon with general hospital practice these chapters deal with a subject which the author has made specially his own. He has devised new methods which in his hands at least have given almost perfect results, and we rejoice to have so complete a presentment of the author's ideas. Many surgeons associate the name of Brophy only with the special operation which is called by his name, and which consists in the forcible pressing together of the two maxillæ in very young infants; but, as a matter of fact, he has made important additions also to the operations employed in older children and in adults, and his results more than justify the procedures he adopts.

Professor Brophy lays down the principle that the earlier the operation for cleft palate is performed the better, provided that the health of the child is satisfactory. If the child is under 5 months of age he holds that the approximation method is the best treatment, and that the ideal time for the operation is the second week of life. If, however, the child is older than this it will be impossible to adopt the method. If a hare-lip is present as well as a cleft of the palate we are told that the palate should be closed before any operation is performed on the lip, as the cleft in the lip will give much needed room for the operation on the palate. He does not consider it necessary in the great majority of cases to make any lateral incisions in the palate for the relief of tension, but he employs leaden plates fixed with wire sutures to overcome the strain. The subject is important, and we do not attempt

a discussion of all the aspects of the questions involved, but here we have the facts and arguments which support Professor Brophy's opinions, and we refer to the book itself every reader who desires to investigate the subject fully.

The book is freely illustrated, and most of the illustrations are very happy, but in a few the photographs of the interior of the mouth show very little. It would surely be worth while to have some of these photographs redrawn.

Instinct and Intelligence.

By N. C. MACNAMARA, F.R.C.S. Eng. London: Henry Frowde and Hodder and Stoughton. 1915. Pp. vi.-216. Price 6s. net.

THIS volume is a plea for a modification of the present system of education. Mr. Macnamara states his thesis in the following words: "The animal side of man's nature results from a specific arrangement of elements entering into the formation of his central nervous system which he has inherited from his progenitors, and cannot, therefore, get rid of or permanently alter." These abiding elements he believes to be chiefly resident in the great basal ganglia of the brain, which are so remote from experimental investigation in the higher animals that their functions are but little understood, though they are obviously of great importance. Such a doctrine of inheritance of nervous traits would be barren or fatalistic if it were accepted baldly. Mr. Macnamara maintains, however, that the action of the basal ganglia can be modified by educating and influencing them through the sensory organs or by energy derived from the higher association areas of the neopallium, that mass of nerve tissue which has been added in the course of ancestral development to the modest nervous outfit with which animal protoplasm started on its ambitious career. In the majority of healthy children these modifying influences can be attained by the appropriate exercise of the eyes, ears, and other sensory organs, for by their means instinctive qualities may be directed into useful and improved channels. It is necessary that the body should be healthy if the best results are to be attained, and Mr. Macnamara lays especial stress, therefore, on the need for a healthy environment at home as well as in school for the poorer classes, whilst in our large public schools it would be better if the master endeavoured to discover the disposition of each boy in the light of his parental attributes rather than inquire about the infantile ailments from which he has suffered.

The book is valuable to all who are concerned with educational matters, as it gives abundant food for thought. It is interesting because the author gives an excellent account of the nervous system as it exists in the various animal sub-kingdoms.

English Public Health Administration.

By B. G. BANNINGTON, Inspector of Nuisances, County Borough of West Ham; Certificate, Royal Sanitary Institute; Gilchrist Medallist, Political Science; Society of Arts Medallist, Economics; late Scholar, London School of Economics. London: P. S. King and Son, Limited. 1915. Pp. 338. Price 7*s.* 6*d.* net.

Mr. Bannington's work forms one of the series of studies in economics and political science edited by the Hon. W. Pember Reeves, Ph.D., and in an appreciative introduction Mr. Graham Wallas, professor of political science in the London University, indicates its object and the scope of the instruction that it will afford. We agree with him that the student has hitherto had to content himself with popular handbooks or with chapters dealing with the public health in works on local government, and that the official has found in Lumley's "Public Health Acts" an admirable text-book for reference in the discharge of strictly technical duties, but that neither has had compiled for his benefit a practical treatise which he can read and remember. Mr. Wallas excepts as a general treatise "English Sanitary Institutions," which he describes as obsolete, written by the present Home Secretary in the earlier days of his busy legal career, and, with this exception, we have no doubt that Mr. Bannington's book will for the present stand alone, and that it will be welcomed as the production of a thoroughly practical and experienced man with considerable powers of lucid expression and orderly arrangement.

It has hitherto been difficult to recommend to medical practitioners and others desirous of obtaining a more than superficial knowledge of public health legislation and of its administration anything in the nature of a readable book and not a précis of Acts of Parliament and Orders, and the need for such a work may well have been responsible for the indifference of many members of local authorities towards an important branch of their duties. For the purposes indicated we believe Mr. Bannington's book will be found extremely useful. And as he gives constant reference to authorities in his text and footnotes, it will be easy for anyone who desires to examine any particular point in detail to follow the matter up as far as he pleases. He will, moreover, find a useful bibliography of the subject on the pages preceding the index. Medical officers of health will naturally see in such a work much with which they are familiar, as connected with the performance of functions which to them are a matter of routine. They should, however, also be able to trace useful suggestions as to the possibilities of their office in such chapters as that on registers, records, and reports, while there are many matters for their consideration in the observations upon official status and security of tenure. While maintaining the general desirability of this security of tenure for all health officers, Mr. Bannington does not conceal his opinion that the local authority will usually be master of the situation whenever it sets its corporate mind to the task of getting rid of any officer. He suggests that the process of making the life of the object of its dislike burdensome and unpleasant will always be possible to a public body, and that the refusal of the Local Government Board to sanction a dismissal may be of little practical value when the Board and the local authority come into conflict.

The history of public health legislation may be traced back through the Middle Ages to the Pentateuch by the aid of the author's introductory chapters, though in its modern and more effective development it is a very modern history. As such this history may be recommended to the study of our present legislators, who should be encouraged in continuing the work which they have begun by the results achieved. They will find in the author's concluding chapter a plea for simplification and codification, for which any legal library supplies an unanswerable argument in the bulky volumes of Lumley's "Public Health Acts" already referred

to. And they will also be reminded that in the present and coming crisis in the nation's affairs every step taken to promote efficiency, combined with rigid economy, and to prevent overlapping and extravagance on the part of public bodies charged with the care of the public health is of supreme and increasing importance.

With the Turkish Army in the Crimea and Asia Minor: a Personal Narrative.

By THOMAS BUZZARD, M.D. Lond., &c. London: John Murray. Price 10*s.* 6*d.* net.

IN the sound, smooth prose which he has at command Dr. Buzzard recalls his experiences as a member of the staff of surgeons who, early in 1855, left England for the Crimea to supplement the surgical aid which up to then had been found insufficient by the British officers under Omar Pasha. A young man in the early "twenties," a Member of the Royal College of Surgeons of England fresh from well-utilised opportunities in hospital practice, he embraced his mission with the alacrity of the professional enthusiast who enters on a field of practice prolific in surprises and new developments. The seat of war, moreover, had the special attraction of classical association for the young surgeon who had not forgotten his Æschylus or his Xenophon, and who possessed not only the literary but the artistic instinct which found expression, as occasion offered, in many a graphic descriptive letter and many a water-colour sketch.

The journey out in those days was neither so comfortable nor so expeditious as it has since become, and the vicissitudes of travel by land and sea are described by Dr. Buzzard with something of the frolic welcome congenial to robust health, high spirits, a sense of humour, and a happy exemption from the *mal de mer*. On reaching his destination he found that (all too characteristic of the home authorities) the staff had not been secured the recognition due to it at the Turkish headquarters and that consequently its services were denied their proper scope. The result was a long period of idleness, almost absolute, at Eupatoria which, to one of fewer non-professional resources than Dr. Buzzard, must have been painfully irksome, but which he effectively relieved by study, topographical, climatic, and other, as well as by watching, wherever practicable, the operations at the front. Incidentally, too, his knowledge and skill were in requisition, not least in the epidemic disease then more fatal to an army in the field than the actual fighting. Cholera, for instance, was widely diffused, and would have numbered many a victim but for Dr. Buzzard's advice to avoid the water, for his friend, John Snow, had the year before during the cholera explosion in Soho demonstrated drinking water to be the vehicle of the malady. Relief to the wounded was also a frequent practice of his, on occasion of his riding over the war zone—particularly during the battle of the Tchernaya, the episode of which came under his eye. Some of these scenes he describes with a pictorial impressiveness which has all the effect of a vivid sidelight on the official report—a contribution to the intelligent appreciation of the scene which is equally illuminating in his account of the siege of Sebastopol. On the fall of that stronghold Dr. Buzzard and his colleagues on the staff were told off under the Deputy Inspector, Dr. Farquhar, to Trebizond and Sinope, there to establish and equip on a satisfactory footing the hospitals, which in Turkish hands were lamentably defective. This task, in which he took a conspicuous part, proved a blessing to Omar Pasha's command and earned the cordially expressed gratitude of that able and humane general.

Further than this we need not follow Dr. Buzzard's narrative, which will be found an eminently interesting and instructive commentary on many phases of the war not included in the monumental work of Kinglake. The sketches which illustrate the letterpress are those of an accomplished artist who has found his pencil a pleasant distraction throughout a long professional career, academic, clinical, and consultant. His pen, too, has proved to him not less of a recreation, as may be inferred from the freedom and the skill with which he wields it. Witness the chapter entitled "A Wild Night," in which he describes a robbery, partially successful, perpetrated by two marauders in the tent which he shared with a colleague. The description is not unworthy of Dickens, of whom Dr. Buzzard is a manifest, not to say grateful, admirer.

Morphology and Anthropology: A Handbook for Students.

By W. L. H. DUCKWORTH, M.A., M.D.Cantab. Cambridge University Press. Second edition. Vol. I. 1915. Pp. 304. Price 10*s.* 6*d.* net.

AS a guide to physical anthropology this handbook is greatly to be commended to those students who have already a fair knowledge of comparative anatomy, at any rate of vertebrated animals. But after this much is taken for granted, the student will learn the necessary and preliminary facts for the further consideration of anthropology pure and simple.

The volume is really an account of the general anatomy of the order Primates, with such reference to mammals lying lower in the scale as is necessary to the right understanding of those general facts. Abundant and detailed tables of anatomical characters help usefully to fix in the mind in a crystallised condition the essential points of structure which it is incumbent upon the student to have later at his fingers' ends, if he would consider the structure of man and his place in the zoological system. All of these anatomical facts are set forth in very clear language and to a large extent they are illustrated for the student by plain figures in the text. It is a feature of this work that these illustrations are to a considerable degree quite new and have the further advantage that they are direct copies of bones or preparations in the Cambridge Museum, and can thus be handily compared with their originals. To the order Primates Dr. Duckworth refers the lemurs, following some, though by no means all, systematists; again, in accordance with the views of some he would place the little tarsius of the East (of which a figure is given) in a suborder by itself, the two remaining suborders being the rest of the "lemurs"—i.e., Lemuroidea, and the apes and man lumped together as Anthropoidea. The inclusion of the lemurs and tarsius with the Primates is insisted upon almost entirely on account of the brain structure so amply elucidated of late years by Dr. Elliot Smith, but this inclusion is hardly in accord with the general anatomy of the animals concerned. In view

of difference of opinion it may be freely conceded that Dr. Duckworth is perhaps safer in including than in refusing to include the "half apes" among the true apes and man. Having taken this step, the author does not ignore the diversity of structure shown among the lemurs, and gives all of the principal facts in their anatomy where they differ from the higher "Primates."

Dr. Duckworth refers to some of the literature of his subject, but does not overload his pages with references. Possibly he goes a little way towards the other extreme. It gives one rather a shock not to find the name of Owen mentioned in his index of authors quoted in this really valuable handbook.

Old Age Pensions: Their Actual Working and Ascertained Results in the United Kingdom.

By H. J. HOARE, B.Sc, LL.B., Clerk of the Local Pension Subcommittee for Camberwell and Lewisham. London: P. S. King and Son, Limited. 1915. Pp. 196. Price 3*s.* 6*d.* net.

THIS little book has been written to serve as a "practical and human account of the actual working and ascertained results of the Old Age Pensions Acts, 1908 and 1911," and not as a legal text-book for the guidance of lawyers. It is well calculated to fulfil its object, and should prove of use for the instruction of the ordinary citizen who takes an interest in the minor workings of our Governmental Providence, as well as of those engaged in the administration of the Acts. At the same time the suggestion may be made that a book which, though not written for the use of lawyers, is devoted to explaining or criticising Acts of Parliament loses by not having those Acts incorporated in it. In this instance the Acts and the rules for administering them would not have taken up much space in an appendix, and the addition of an index or of a full table of contents would have been no disadvantage.

Mr. Hoare has some suggestions to make for the improved working of the Acts which he puts forward in a concluding chapter. The changes which his experience causes him to suggest are not of a revolutionary description, but we note that he considers that a pensioner entering a Poor-law institution for medical or surgical assistance should have his pension discontinued after four weeks. He appears to desire that the forfeiture thus taking place should be permanent and not merely co-extensive with residence in the Poor-law institution, the hardship of which would be that even after many weeks the pensioner might recover and be as well able to live outside as he was before. We should like to see the reasons for such a proposal more elaborately stated before expressing any assent to it.

Some observations and statistics with regard to the extent of the relief afforded to the rates by old-age pensions will be found in a chapter entitled "Statistics of Working," and a good many subjects, such as whether the failure to maintain a decent standard of personal cleanliness should disqualify for a pension, and questions other than that mentioned above arising out of the acceptance of medical Poor-law relief, are treated briefly and clearly. In short, a bird's-eye view of the Acts in the working is presented, unimpeded by any excess of detail, and we commend the book to those of our readers whose work brings them in contact with the questions dealt with.

LIBRARY TABLE.

Handbook of Physiology. By W. D. HALLIBURTON, M.D. Lond., Professor of Physiology, King's College, London. Twelfth edition. With nearly 600 illustrations in the text, many in colours, and 3 coloured plates. London: John Murray. 1915. Pp. 924. Price 15*s.* net.—The eleventh edition of this handbook was reviewed in THE LANCET of Dec. 13th, 1913. The alterations are of a very minor character. The number of illustrations in the two editions are exactly the same—577—and we found no additions or removals. The number of pages (924) exceeds by one the number in the last edition. Here and there we found a slight alteration or addition in the text, e.g., under fever, but practically page for page both the text and the pagination are identical in the two editions.

Lessons in Elementary Physiology. By THOMAS H. HUXLEY, LL.D., F.R.S. Enlarged and revised edition. London: Macmillan and Co. 1915. Pp. 604. Price 4*s.* 6*d.*—The original edition of this perennial and concise elementary physiology was published in 1866. It was revised by Michael Foster, and although the present editor does not mention it, Foster, in the preface to the edition of 1899 states that "my friend, Dr. Lea, and I have undertaken a task of great difficulty." How admirably Foster and Sheridan Lea succeeded, the many times that successive editions were reprinted attest. The present edition is the sixth. Joseph Barcroft, of Cambridge, has undertaken the restoration of the work from the dilapidations of time. Any portion of the fabric in which there was not an actual flaw the editor has faithfully left untouched. Any repairs are substantial and thorough. The edition of 1899 runs to 611 pages and the present one to 604. The number of illustrations—185—in the present edition is less by two than in that of 1899. The work has retained all its characteristic features and has been brought up to date by judicious emendations.

Aids to Physiology. By JOHN TAIT, M.D. Edin., D.Sc., Lecturer in Experimental Physiology, Edinburgh University; and R. A. KRAUSE, M.D. Edin., D.Sc., Lecturer in Hygiene, College of Hygiene and Physical Education, Dunfermline. London: Baillière, Tindall, and Cox. 1915. Pp. viii.–242. Price 3*s.* 6*d.* net.—It is stated that this little book is written as an aid to the student who is presenting himself for examination and who has already attended lectures and practical courses in experimental and chemical physiology and in histology. It cannot in any sense replace the physiological text-book, lectures, or practical work. It is founded on the "Aids" written long ago by Mr. Peyton T. B. Beale. Candidates preparing for the Examining Boards who do not exact a high standard of physiological knowledge may find it useful. So far as it goes, the matter is excellent and concisely put.

Elementary Chemical Microscopy. By ÉMILE MONNIN CHARNOT, B.S., Ph.D., Professor of Sanitary Chemistry and Toxicology, Cornell University. First edition. London: Chapman and Hall, Limited. New York: John Wiley and Sons, Inc. 1915. Pp. 410. Price 12*s.* 6*d.* net.—This is a suggestive book, illustrating, to quote the author's words, "the benefits to be gained through the intelligent application of chemical microscopic methods in the industries and in research." Of the American chemist the author thinks that while he is usually ready to accept with alacrity all time-

labour-, and money-saving devices, he has been strangely backward in recognising the expeditious value of the microscope in analytical researches. Professor Charnot holds that the microscope is a more important adjunct to the laboratory than the spectrometer, polarimeter, or refractometer, and ranks it in importance next to the analytical balance itself. He certainly makes out a good case in favour of giving increased attention to micro-chemical methods. The earliest comprehensive work dealing with micro-chemical methods was, says the author, from the pen of an American—Theodore G. Wormley—whose classic, "The Microchemistry of Poisons," appeared in 1867. We appreciate this reference to a very valuable book, but the microscope was employed in analytical methods some years before this. During the years 1851, 1852, 1853, and 1854, the "Reports of THE LANCET Analytical Commission" were published in this journal, and the disclosures then made as to the enormous amount of adulteration of food and drugs going on were effected by the aid chiefly of the microscope. Thus the microscope really proved to be the foundation of our present Food and Drugs Acts, for legislation soon followed the reports of this Commission. But Professor Charnot has developed a very fascinating branch of analytical methods, for to watch a chemical reaction under the microscope is a most attractive occupation. It is even more attractive, we think, when the test-tube in which the reaction is taking place is put in the field of the optical lantern and the changes are projected on the screen. We strongly recommend this book to the attention of all those engaged in analytical operations. It is quite remarkable what a number of well-known reactions or tests, qualitative as well as quantitative, can, as the author clearly demonstrates, be "intensified," so to speak, or made more sensitive by the aid of the microscope.

A Text-book of Medical Chemistry and Toxicology. By JAMES W. HOLLAND, A.M., M.D., Sc.D. Fully illustrated. Fourth edition, thoroughly revised. London and Philadelphia: W. B. Saunders Company. 1915. Pp. 678. Price 15*s.* net.—This book is evidently appreciated as it has not only reached a fourth edition, but some of the earlier editions were reprinted. In our references to the previous editions we have always expressed a good opinion of this work. The plan of treatment is admirable, the subject-matter has been kept in touch with modern developments, and the ground covered meets the requirements of the medical student conveniently. The present edition contains extensions on such subjects as uranium and vanadium, radium and thorium, the newer organic compounds of arsenic, the protective enzymes, hormones, while there is an entire chapter devoted to the clinical and chemical examination of fæces. The coloured illustrations of certain tests are remarkably close imitations of the real thing.

The Examination of Hydrocarbon Oils and of Saponifiable Fats and Waxes. By Professor Dr. D. HOLDE. Authorised translation from the fourth German edition by EDWARD MUELLER, Ph.D. First English edition. London: Chapman and Hall, Limited; New York: John Wiley and Sons. 1915. Pp. 483. Price 21*s.* net.—This highly technical work calls for little comment in a medical journal, although those sections dealing with the refined paraffins now used in medicine, and the chapters on soaps and glycerine possess some medical interest. The book is a valuable contribution on the subject of the examination of oils, in view of the growing importance to the world of its oil supplies. We are interested in the following observations on the physiological properties of petroleum and petroleum products: "Several of the high boiling petroleum products are used with success in medicine (dermatology), notably vaseline and 'paraffinum liquidum' and 'naphthalan' as the basis for salves. The ill-effects of other products have been demonstrated. Probably the more harmful action of the higher boiling fractions, such as crude paraffin, is due to the insufficient treatment of the crude materials for the removal of oxygen and sulphur derivatives; on the other hand, the highly purified 'paraffinum liquidum' can be used." The book abounds with methods of analysis useful in the evaluation of oils, fats, and waxes.

The Illustrated Medical Dictionary. By W. A. NEWMAN DORLAND, A.M., M.D. Eighth edition, revised and enlarged. London and Philadelphia: W. B. Saunders Company. 1915. Pp. 1137. Price 19*s.* net.—The two years elapsed since the appearance of the seventh edition of this dictionary have necessitated the addition of 30 new pages, an increase of nine pages under the heading "Test," and a series of entirely new plates. The title-page makes the claim to be "a new and complete dictionary of the terms used in medicine, surgery, dentistry, pharmacy, chemistry, nursing, veterinary science, biology, medical biography, &c.," and for medicine and surgery, at least, we believe the claim to be well founded. The book is one which we often use for reference.

MISCELLANEOUS VOLUMES.

WE have received a number of little books dealing with ambulance work. One of these, *First Aid to the Injured and Sick: an Advanced Ambulance Book*, by Major F. J. WARWICK, R.A.M.C. (T.), and Major A. C. TUNSTALL, R.A.M.C. (T.) (Bristol: John Wright and Sons, Ltd. 1915. Pp. 246. Price 1*s.* net), is already in its ninth edition and 120th thousand. A fresh feature in the book is the incorporation of the new stretcher drill from R.A.M.C. Training, 1911. It will continue to enjoy its well-earned popularity. ——A supplement to this manual has appeared in the form of *Questions on First Aid to the Injured and Sick*, by the same authors (Same publishers. Pp. 38. Price 6*d.* net), which it is hoped will enable pupils, especially those who have not the advantage of attending classes, to make their knowledge of the subject more thorough and complete. The page of the handbook on which the answer is to be found is given at the end of each question.——*Martin's Questions and Answers upon Ambulance Work* (London: Baillière, Tindall, and Cox. 1915. Pp. 125. Price 1*s.* net) has been revised and brought up to date by Mr. LEONARD S. BARNES in the light of his wide experience as official lecturer and examiner to the St. John Ambulance Association. The book is in small pocket form and has reached its eighteenth edition and its seventy-second thousand, and evidently can serve as a reminder to what has been learned at lectures and demonstrations. For more than this its lack of illustrations would make it unsuitable.——A new publication on similar lines is *Training in First Aid and Nursing by Question and Answer* (London: The Scientific Press, Ltd. Pp. 133. Price 1*s.* 6d. net), arranged by Captain S. T. BEGGS, R.A.M.C. (R.), whose experience as a lecturer for the St. John Ambulance Association has enabled him to write with authority, and as an old demonstrator of physiology to choose an attractive series of diagrams which add greatly to the value of the book. Part II. is devoted to training in nursing, and here, too, the illustrations are well chosen and most helpful. The book has a limp cover suitable for the pocket, is most attractively printed and arranged, and has a good index. It will make a serious competitor to the older

manuals.——Learning is not the only requirement for a prophet of health, and Professor H. R. KENWOOD in his little brochure, *Health in the Camp: a Talk to Soldiers* (London: H. K. Lewis and Co., Ltd. 1915. Pp. 58. Price 3*d*. net; 100 copies 21*s*. net), has known how to infuse his teaching with a convincing earnestness which makes it doubly attractive. He has endeavoured to convey that which every soldier ought to know, and undoubtedly whets his reader's appetite, as he desires to do, for a fuller knowledge of the subject. We should like to hear that the book is in the hands of every man on service, as we believe that its study will necessarily lead to a more serious attention to personal hygiene.

The valuable work of the *Prehistoric Society of East Anglia* in connexion with Grime's Graves has recently been noticed in our columns,[1] and we now have before us Vol. II., Part I., of the *Proceedings* of the Society (London: H. K. Lewis and Co. Price 3*s*. 6*d*. net). In addition to Mr. J. Reid Moir's presidential address, delivered at the end of 1914, on the Further Discoveries of Flint Instruments of Man Beneath the Base of the Red Crag of Suffolk, the volume contains several papers of interest, including the Occurrence of Palæolithics in North-East Lancashire, by Dr. T. E. Nuttall, and a Cave Site at Nettlebed, S. Oxon, by Mr. A. E. Peake. Since this volume was published we learn that Mr. Moir has been conducting a series of excavations in a brickfield to the north of Ipswich, where some later Pleistocene relics have been discovered. The human remains comprise small portions of occipital bones, the shaft of a female humerus, and a male femur, all in a well-preserved condition.

Within the compass of less than 100 pages Mr. VERE MINGARD, in the *Story of Islington and Finsbury* (London: T. Werner Laurie. Local History Series. Price 1*s*.), gives the reader a clear picture of the history and topography of an interesting part of London, whether in Saxon or more modern times. The book is well illustrated with reproductions of old prints, and will certainly stimulate the interest of those who are unfamiliar with the story of our great metropolis.——In a companion volume Mr. J. F. WOOD, B.A., tells the *Story of Manchester* (same publishers and price) from early times, when it was a small settlement on the banks of the Irwell, to the present day. This book, too, is well illustrated, and makes interesting and stimulating reading.

As a welcome reminder of the pursuits of peace appears a new and revised edition of *Roses and their Cultivation* (London: W. H. and L. Collingridge. 1915. Pp. 204. Price 3*s*. 6*d*. net) by the well-known expert, Mr. T. W. SANDERS, the editor of *Amateur Gardening*. The book is well illustrated with coloured plates, diagrams, and plans, and among the new features is a chapter on the cultivation of roses as annuals. A list, which the author states is by no means complete, includes 1300 varieties of roses classified in alphabetical order under their respective types. Simple and practical instructions for every phase of rose-growing are given.

MAGAZINES.

The Yellow Fever Bureau Bulletin. Vol. III., No. 4.—We regret to learn that after the issue of this number the Bulletin will cease to appear. The special funds which were collected in 1911 by the late Sir Rubert Boyce to defray the expenses of the Yellow Fever Bureau at Liverpool are now exhausted, consequently it is no longer possible to continue the publication of the Bulletin; but articles relating to yellow fever will in future appear in the *Annals of Tropical Medicine and Parasitology*. Since the formation of the bureau three volumes of the Bulletin have been published, as well as two large supplementary volumes containing the reports of various investigators who have been working during 1913 and 1914 under the Yellow Fever (West Africa) Commission, appointed by the Colonial Office. Dr. Harald Seidelin contributes to this number an article on the distribution and prevalence of yellow fever during the past two years, and in it he points out that although in that period there has been a marked decrease in the number of cases reported, it does not follow that there has been a reduction in the endemicity of the disease. He suggests that political and other conditions may have in some countries interfered with the influx of foreigners, non-immunes, who are the chief source for supplying the typical cases by which the disease is usually recognised. It is maintained that further investigations of late have tended to confirm the views put forward by the late Sir Rubert Boyce that yellow fever is endemic over a large portion of the West Coast of Africa. Dr. Seidelin, as editor, furnishes a paper on town planning in the tropics, with special reference to the prevention of yellow fever. He also contributes two original articles, the first dealing with the histology of the liver in yellow fever, illustrated by numerous coloured plates; the second comprises some notes on hæmatological technique. A considerable portion of this number of the Bulletin is devoted to the furnishing of abstracts of many interesting books and papers relating to yellow fever, pappataci fever, and dengue, and appended is a bibliography divided into four sections—namely, (1) general; (2) yellow fever; (3) pappataci fever; and (4) dengue.

We regret that so useful a journal as the *Yellow Fever Bureau Bulletin* should be allowed to die an untimely death for want of the necessary funds.

[1] THE LANCET, August 14th (p. 341) and Sept. 25th, 1915 (p. 714).

New Inventions.

A BED STRETCHER.

A STRETCHER that possesses the advantages of supplying comfortable support for the patient, is light and portable, and when in use can be stood on wet ground, even in several inches of water or mud, without inconvenience to the sick or wounded man, should prove useful at the present moment. A stretcher possessing these qualities has been brought to our notice by the patentee, Mr. F. Goddard, of 30, Coleman-street, London, E.C., and we understand that it has already been put to practical use by the Belgian Government who have found

it convenient and satisfactory, while the French and Italian Governments have the stretcher under consideration. As will be seen from the illustration, the apparatus consists of two inverted V shaped supports, the free ends on each side being connected with each other, thus forming a cradle-shaped framework. A T-piece is attached to the apex of the V-shaped supports, and attached by rings to the ends of these cross pieces is a canvas sheet which stretches between them. The framework of the stretcher is constructed of lengths of metal tubing, a detachable metal casting connecting the joints. When not in use the stretcher folds up into a comparatively small compass. It can be erected in a few seconds.

LORD STRATHCONA'S LEPER CHARITY.—It will be remembered that the late Lord Strathcona left a sum of £5000 for the purpose of founding a charity for the benefit of lepers. A scheme sanctioned by the Charity Commissioners has now been issued and provides that the annual income shall be applied in one or both of the following ways—namely: (1) In or towards maintaining a home to be used for the accommodation of British subjects in the United Kingdom suffering from leprosy; (2) in assisting the work of any persons, or society, or company engaged in the relief of lepers in the United Kingdom. The first three trustees are Mr. John Burns, M.P., who is appointed for life, and Sir A. H. Downes and Mr. W. T. Jerred, C.B., senior medical officer and assistant secretary respectively of the Local Government Board, who are appointed for the first five years. The appointment of future trustees will be in the hands of the President of the Local Government Board then in office.

THE LANCET.

LONDON: SATURDAY, JANUARY 8, 1916.

Lord Derby's Report on the Recruiting Scheme.

LORD DERBY'S report on the recruiting scheme, the conduct of which was committed to him by the Government, appeared on Tuesday last, and as the actual figures have been issued by all the daily papers we need not repeat the analyses which are familiar by this time to our readers. The winning of the war, rapidly and economically, is a national affair; it is the business of us all to help to this consummation by individual effort, by class organisation, and by common endeavour. Therefore, the success or failure of Lord DERBY'S recruiting scheme is a matter of the first importance to medical men, most of whom will agree with us in feeling some sense of disappointment at the position. A huge crowd of single men are holding back and furnishing by their dilatoriness a text for very unpleasant sermons.

The total of recruits looks well, when it is remembered that the names have been obtained under a voluntary system. But there are a large number of men actually medically unexamined among both the starred and unstarred, and it is a certainty that some of these men will be rejected when the various groups are called up and subjected to proper examination. The question of medical examination will become very important, for a proportion of the new candidates have been rejected already for reasons of health and physique, and have presented themselves anew that they may earn an honourable discharge from their patriotic liability. Close medical inspection may reduce the new recruits to a less imposing figure, but the starring of numerous occupations is what has most impeded the movement. Lord DERBY, in his remarks upon the result, with which he is obviously not satisfied, pointedly declines to state what are in his opinion the industries indispensable to this country, but adds that if there is any further reservation of occupations the value of the recruits obtained must go down. On learning from Lord DERBY'S report of the number of trades and occupations that have been starred it is inevitable that medical men should wonder why medical students should not have been starred, seeing that their value to the country in a few years' time will obviously be very large. It would have been difficult, however, for the medical profession to make any more definite stand in behalf of the cause of medical education than was actually made. The War Office stated its intention not to discourage junior medical students from accepting combatant commissions; Lord DERBY informed an important official deputation, including the Presidents of the English Royal Colleges, that it was the duty of medical students, other than those in their fourth and fifth years of study, to join the forces; and the Director-General of the Army Medical Service formally signified to the General Medical Council his agreement with Lord DERBY'S view.

But it is impossible not to see that medical students had a far greater claim to be starred than many other young men, though we recognise with pride that their general feeling was wholly in favour of being permitted to take their own course and fight for their country at once. But the question is still exercising the minds of many of our readers, for undoubtedly it is a reckless move to empty our medical schools of all save a few senior students, and to allow our professional roll to be without additions from the year 1918 to the year 1920, which is roughly the present position. Well may many of the teachers in our medical schools and the staffs of our universities ask why if a cowman is starred is not a medical student starred? The answer, of course, is perfectly obvious. A cowman, a veritable cowman and not a person who calls himself a cowman so as to dodge his responsibilities as a recruit, is a person who is, *quâ* cowman, of greater immediate use in the farmyard than in the ranks; while the medical student, drawn to a large extent from the stratum of society whence the best young officers are obtained, is urgently needed with the forces.

We publish in another column a statement of the activities of the Central Medical War Committee, which, in close conference with the Medical Department of the Army, has worked out a scheme for recruiting medical officers.

The Measurement of Blood Pressure.

THE progress of science has always been intimately connected with the introduction of instruments of precision. The name of Dr. GEORGE OLIVER, whose life-work we record in another column, will always be associated with instruments for the measurement of blood pressure. For although others were earlier in the field in introducing methods capable of clinical application, he was one of the first to make that application and to facilitate it by the simplification and improvement of the apparatus required. And a rich harvest of facts soon rewarded him, even though the interpretation of these facts is still to some extent in dispute. The clinical value of observations on blood pressure is doubted only by those who have never made them. It is true that the finger can detect some differences in pulse tension, but it is often entirely at fault, since it can only estimate total pressure, thus missing a high pressure if the volume be small. In the same way although the hand can detect differences in temperature, it cannot replace the thermometer. The sphygmomanometer has enlarged our ideas, cleared up

difficulties in diagnosis, and helped in prognosis. This has naturally reacted on treatment. It has enlarged our ideas on "heart failure." The heart is adjusted to work at certain pressures, and though within considerable limits it can adjust itself to variations, those limits may be exceeded. In an acute infection blood pressure may fall dangerously low, and sensory stimuli do not produce the usual pressor result, though abdominal massage is still effective. It is the vasomotor system that is poisoned, rather than the heart that is damaged. But the heart cannot carry on the circulation satisfactorily if the blood pressure is quite inadequate. Recognition of these facts has led to the problem being attacked through the vasomotor system by means which act peripherally, thus protecting the heart from secondary damage and needless or harmful stimulation. CRILE and LOCKHART-MUMMERY take a similar view of the origin of surgical shock, though of late this has been disputed. There is the opposite condition in which the heart fails while the pressure is very high. In some cases where the pressure has been unduly high, perhaps for years, the heart fails because it can no longer work against an excessive resistance. But in others it is probable that the rise of pressure is compensatory. With diminishing output vaso-constriction is necessary to lessen the size of the arterial bed. But this vaso-constriction would only raise the blood pressure to its normal level again; it would not force it higher. Yet it is often a surprise to find with a feebly beating heart a pressure of 200 mm. or more. The recent work of STARLING and his school throws fresh light on this apparent paradox. The contractile force of a muscle depends upon and is proportional to its previous stretching, so that in its inception even cardiac dilatation is compensatory, and a rise of blood pressure will increase the stretching of the cardiac muscle. But it is a desperate expedient, for with overstretching complete failure may ensue. In a primary affection of the heart muscle this is particularly likely to occur; hence the liability to sudden and fatal syncope. This work has also thrown a new light on "back pressure," for a rise of venous pressure increases the filling and therefore the stretching of the right auricle. OLIVER was much interested in the measurement of venous pressure in man, and published a paper on the subject in 1898, long before its significance was grasped.

This new work explains what had previously been realised clinically—that the indiscriminate lowering of blood pressure by a frontal attack with vaso-dilators is dangerous. In the early days of the sphygmomanometer there was too great a tendency to its use, just as there was a tendency to indiscriminate lowering of the temperature in the early days of antipyretics. A rise of pressure is a symptom just as surely as a rise of temperature. In all attempts at repair, however, the body may overshoot the mark, and it may become as imperative to lower pressure as to treat hyperpyrexia. The sphygmomanometer has aided in diagnosis in many ways. We may appeal to it if in doubt whether a hemiplegia is due to hæmorrhage or thrombosis; in the former it is always high, while in the latter it need not be, and indeed seldom is. Perforation in typhoid fever causes a rise of pressure, while hæmorrhage produces a fall. A fall of blood pressure is occasionally a valuable sign of incipient or recrudescent phthisis. A great fall of blood pressure may occur quite early in Addison's disease. A marked fluctuation on change of posture in a patient with albuminuria suggests that it may be orthostatic in origin. A distinct difference of pressures in the two arms may be a sign of aortic aneurysm. As to prognosis, a continued rise in the already high pressure in cerebral hæmorrhage is of the gravest import. In chronic nephritis a raised pressure is necessary for adequate excretion, and cases in which it does not occur usually do badly. In pneumonia a continued but gradual fall of pressure is the rule. GIBSON found that any sudden rise before the crisis implied the onset of some complication, while a sudden fall was a warning of impending vasomotor paralysis, leading to heart failure. A rise of blood pressure in pregnancy has been found a valuable prognostic sign of the approach of toxæmia. But perhaps one of the most practical applications of the sphygmomanometer has been the recognition of the rise of blood pressure in later life, before any organic change has occurred in the arteries, and therefore while the case is still amenable to treatment. A busy man nearing 50 years of age, who finds himself getting unduly short of breath on slight exertion, and liable to vertigo, insomnia, "biliousness," or headache, may show no evidence of disease to ordinary physical examination, but the sphygmomanometer would probably reveal a blood pressure of 180 mm. or more. If we meet this by putting the patient into the way of physiological righteousness rather than by depressor remedies, the results are often extremely gratifying. In this "pre-sclerotic" stage we should pay more attention, as OSLER urges, to the peripheral field of the circulation "rather than tinker at the pump or the mains." And the peripheral circulation always received careful consideration in OLIVER'S work.

It is an interesting paradox that in medicine instruments of precision have a way, largely because of their educational influence, of diminishing the necessity for their own use. Thus the sphygmograph taught us many things about the pulse which could subsequently be recognised without its aid. The electrocardiograph was necessary to the detection of auricular fibrillation and to the explanation of its nature. But already we can sometimes diagnose this condition without it. To a certain extent the same is becoming true of the sphygmomanometer, but this does not diminish our indebtedness to the man who has familiarised us with its lessons.

Annotations.

"Ne quid nimis."

THE NEW YEAR HONOURS.

THE names of three medical men appear in the list of those on whom the honour of knighthood has been conferred. Sir George Andreas Berry is honorary surgeon-oculist to the King in Scotland, an ex-President of the Royal College of Surgeons of Edinburgh, and ophthalmic surgeon to the 2nd Scottish General Military Hospital. Sir Thomas Wright Parkinson is physician to Prince Louis of Battenberg and to the Countess Lytton Hospital for Wounded. Sir Milsom Rees, C.V.O., is laryngologist to the King and Queen and to the Queen Mother. Surgeon-General Guy Carleton Jones, Director of Medical Services to the Canadian Expeditionary Force, has been made C.M.G. Brevet-Colonel William Westropp White, I.M.S., has been appointed to the Order of the Bath. To the Order of the Indian Empire have been appointed as Companions Dr. John Andrew Turner, of the Bombay Health Department; Lieutenant-Colonel Robert Charles Macwatt, I.M.S., who already holds the Kaisar-i-Hind Medal; and Dr. Suresh Prosad Sarbadhikary, of Calcutta. A further knighthood in India has been conferred upon Dr. Rai Kailash Chandra Basu Bahadur, of Calcutta. The honours to members of the Regular Services are noted in another column, and to the holders of all these well-earned distinctions we offer hearty congratulation.

THE PROHIBITION ORDER AND BRITISH WINES.

THERE appears to be a widespread but mistaken idea amongst the public and amongst tradespeople that the preparations known as British wines are non-alcoholic, and there has been quite a brisk sale of these beverages during the hours prohibited by the recent Order. Ginger wine apparently is the first favourite and the sense of warmth and invigoration which a glass of it gives is innocently attributed to the ginger present, while as a matter of fact the stimulus is due to alcohol. The sale of this commodity and the drinking of it on licensed premises are therefore illegal at certain hours, since the Order refers to all alcoholic beverages. The public has no means of deciding what beverages are alcoholic and what are not, and it seems to us to be an important omission in the Order that no definition of an alcoholic beverage is given. We should have thought that it would have occurred to the authorities that the Order would be incomplete without a schedule. As it is, the sale of alcoholic beverages of the kind we have described during prohibited hours has been carried on apparently unchecked. There is evidence also that the demand for these British wines has largely increased, since at several shops it is a common experience to be told that the retailer is out of stock owing to the sudden popularity of this class of liquor. On the other hand, some traders know perfectly well that such preparations are alcoholic, for they definitely refuse to sell them during prohibition hours. But this attitude of compliance with the law is not shown everywhere, as this week we purchased at a grocer's shop at 3.30 P.M. a bottle of raisin wine which on analysis proved to contain 10 per cent. by volume of alcohol. Similarly a sample of ginger wine was found to contain 11·61 per cent. of alcohol. Cordials, we know, are prepared on similar lines to British wines, but cordials are not fermented or fortified with spirit, and are generally labelled distinctly as non-alcoholic. If anyone will trouble to look up in an ordinary book of domestic recipes the section of home-made British or fruit wines, he will find that in most examples the product is allowed to ferment for some time, and it is not surprising, therefore, that the alcohol, as in the cases we have quoted, grows to 10 per cent. Further, in a number of recipes it is recommended to add to the partly fermented liquor brandy to the extent of 4 per cent. This process recalls the preparation of port, for in this case the grape juice is allowed to ferment up to a certain point, and then the fermentation is stopped by the judicious addition of brandy. Mulberries and bullaces thus make, we read in one book of recipes, "an excellent factitious port." In a similar way the following wines are prepared with or without the addition of sugar: Gooseberry wine (British champagne), elder wine, damson wine, rhubarb wine, celery wine, parsnip wine, turnip wine, orange wine, cowslip wine, and so forth. It is a notorious fact that many teetotalers exhibit a preference for beverages which they regard as non-alcoholic, but which on analysis prove to contain alcohol. In some of the herb beers and in ginger-beer, which is a fermented beverage, alcohol invariably occurs, and sometimes to the extent of from 4 to 9 per cent. of proof spirit (50 per cent. alcohol). It may be right to call these temperance drinks, but it would not be correct to describe them as non-alcoholic. The legal limit of alcoholic strength of temperance or non-excisable drinks is 2 per cent. proof spirit, and the unlicensed sale of beverages containing over this amount ought to be followed by penalties. British wines are prepared on practically the same lines as foreign wines, and contain as much alcohol; therefore they cannot be exempted from the provisions of a Prohibition Order, and the teetotaler who finds satisfaction in the drinking of these wines should be disillusioned as to the source of his satisfaction. Non-abstainers know well that their feeling of satisfaction after drinking British wines is due to alcohol, and alcohol alone, and they have obtained what they wanted in prohibited hours because of the belief that British wines are necessarily non-alcoholic. That, as we have shown, is not the case.

PROPOSED REFORMS CONCERNING VENEREAL DISEASE IN SWEDEN.

THE proposals of the Swedish Royal Commission on Venereal Disease with regard to the regulation of prostitution are based on the almost general admission that in its present form the regulation of prostitution by the police is neither humane nor effective enough. The Commission has accordingly advocated the abolition of regulation in its present form, and has put forward the following proposals, which it is hoped will reduce the incidence of venereal disease without reacting too harshly on its victims: 1. Abolition of the regulation of prostitution. 2. Institution of an educational campaign among the public for the furtherance of knowledge of the infectious nature of venereal disease. 3. Assumption by medical men

who examine and treat patients suffering from venereal disease of the responsible task of teaching these patients how to avoid further spread of the disease. 4. Transfer of every expense in connexion with the examination and treatment of venereal disease, even among the well-to-do sometimes, to the sanitary authorities (this has already been the practice with regard to the hospital treatment of venereal disease, but the Commission's proposal extends this principle to the costs of diagnosis and of ambulatory treatment). 5. Notification of venereal disease by medical men with a view to its distribution throughout the country being ascertained (a modified form of notification has existed since Dec. 30th, 1911). 6. Adoption of certain measures, compulsory if necessary, against sources of infection, with a view to the medical control and treatment of such cases. These measures include: (*a*) tracking down the source of infection largely by the help of notification by medical men; (*b*) compulsory sanitary control of persons coming under the vagrancy laws; and (*c*) supervision of certain persons who, in addition to being guilty of other offences, are suspected of suffering from venereal disease. The Commission is in favour of the vagrancy laws being applied, as in the past, to those prostitutes who, "being unwilling to work honestly, have adopted dissolute living as their only or main means of support." Two of the Commission's members, Professor J. E. Johansson and Otto Westerberg, have dissented from the proposals referred to under (*a*), (*b*), and (*c*). The Commission has also advocated certain reforms in the hospital treatment of venereal disease,[1] and has recommended the insertion of penal clauses as a deterrent to the spread of infection. Alterations in the laws dealing with such institutions as brothels are also suggested, as well as punishment for persons who encourage immorality in a manner calculated to provoke general disgust.

QUARTAN MALARIA: RELAPSE 42 YEARS LATER.

Dr. I. van der Heijden records in the *Nederlandsch Tijdschrift voor Geneeskunde* (1915, vol. ii., p. 1680), the case of a labouring man, aged 64 years, living in Rotterdam, who developed a typical quartan malaria in February, 1915. The patient's blood contained the characteristic parasites, and the fever was rapidly cured by the exhibition of sulphate of quinine. The writer remarks that cases of quartan malaria, never common, are unknown in the quarter of the town in which this instance occurred, as also is the anopheles; he concludes that the patient had a relapse from an old infection occurring when he was 20 years old. At this period the man was working as a farm-labourer near Leyden, and lived in the same house as a peasant who was suffering from quartan ague. Dr. van der Heijden's patient was attacked by the fever himself and suffered from it for about a couple of years. He remembered that during this time he was able to work for periods of two and a half days, but then had to go to bed when the sweating stage supervened in the afternoon; next day he would be fatigued, but able to work. After about two years he was given a medicine, presumably one containing quinine, that cured both himself and the peasant. The quartan ague never returned till 1915. Dr. van der Heijden comes to the conclusion that there can be no question of a new infection with the parasites of quartan malaria in this instance; he is therefore obliged to conclude that the case was one of a relapse 42 years after the original infection. He notes that the patient had been living in Rotterdam for the last few years—he does not say for how many, and he presumes that he had the quartan parasites latent in his bone marrow all the time.

[1] THE LANCET, Dec. 11th, 1915, p. 1308.

THE "BROWN STUDY."

AT the present time there can be no more unpopular view, or shall we say no greater heresy, than to claim any advantage from the use of alcohol. True, there are occasional evidences in the letters of soldiers that courage has been raised, drooping spirits revived, even successes achieved by the help of the rum ration; but even this moderate dose of stimulant is condemned by many persons of experience. We wonder that these persons have never attempted to show that there is a state of mind which sometimes comes about in pure sobriety in which ideas flow readily, resolutions are quickly reached, speech finds its correct expression, and the physical well-being makes itself unusually obvious—a state of mind which much resembles, in fact, that temporary exaltation which is most easily achieved by the moderate use of alcohol. It is in such a state that truths dawn suddenly and clearly upon the unclouded intelligence. It is in such a state that mighty actions are conceived, poems born at a stroke, and mankind enlightened through the enlightenment of the individual. Because such a state is in rare individuals produced by moderate libations we have the saying "In vino veritas," but this clarity of the mental atmosphere can be and should be obtained without drinking. It often is. This happy result comes about through what is sometimes known as the "brown study." In this state of mind there is such a concentration of mental energy that the body is ignored. The mind, on the other hand, is so working upon the subject which concerns it, is so intent upon its own affairs, that the external world is obliterated and any bodily discomfort that may have been pre-existing is now negligible and unnoticed. In the mental ardour of composition, be it literary, pictorial, musical, the creator is relieved from all bodily woes. Thomas Hood forgets his lungs and Richard Wagner his poverty. Over and over again in the history of men who have created things we find evidence of this glorious pre-eminence of mental activity over all the detractions of poor surroundings or bodily ill-health. While they are in a "brown study" nothing can hurt them. A similar exaltation is that which accompanies the mental concentrations of the Indian Mahatmas. It is well known that these men can for long periods ignore even the usually necessary means of bodily subsistence, and it is claimed that in this state of spiritual exaltation powers of insight and of divination become possible to them that to the ordinary man may well seem to partake of the miraculous. We need not believe the claim even while we see that the Indian fakir is able to utilise in a wonderful way the relationship between mental activity and bodily state. And it is just this relationship which is not realised either with sufficient frequency or with sufficient thoroughness by the European to-day. The average man is too

engrossed with his bodily pabulum, and in caring for the needs of the body he neglects the needs of the mind. If the "brown study" were more often cultivated many people would be happier and more clear thinking would be done.

TEETHING AS A CAUSE OF SYMPTOMS IN INFANTS.

THE problem of dentition in infants in one shape or another reappears from time to time in medical literature all the world over, and mothers and nurses appear to be, as a correspondent of THE LANCET points out this week, in entire agreement that teething is the *fons et origo* of that miscellany of ailments to which infants during the period of dentition are peculiarly prone. It may further be asserted with some confidence that the majority of family practitioners are of the same opinion in a somewhat restricted sense. The dissentients from this view are mainly to be found in the ranks of hospital physicians and specialists, but even among pædiatric physicians of the first rank there are diversities of opinion on this thorny question. To give a few instances only, Dr. A. Jacobi, of New York, a pronounced sceptic and the Nestor of pædiatrics, caustically remarks in his "Therapeutics of Infancy and Childhood" (p. 315): "There are, fortunately, practitioners who prefer making a diagnosis of the real condition of the ailing baby, and that and its improvement or cure comprise the main treatment I recommend for 'difficult dentition.'" Dr. Leonard Guthrie, whose opinion both as a neurologist and as a specialist in the diseases of children deserves the most respectful hearing, devotes in his "Functional Nervous Disorders in Childhood" an entire chapter to the disturbances associated with primary dentition. He discharges whole broadsides of good-natured chaff at the expense of those who believe that the physiological process of dentition has pathological consequences. He says on p. 173: "I believe, therefore, that the ordinary phenomena of painful dentition are dependent on alimentary disturbances associated with a 'common cold,' and that dentition is painful because the gums become unhealthy." Dr. G. F. Still, in a wholly admirable article on the same subject in his "Common Disorders and Diseases of Childhood," gives a long list of the symptoms which he ascribes to the process of teething, and concludes with the words: "I am inclined rather to enlarge than to restrict my own conceptions of the rôle of dentition in producing disturbances of various kinds in infancy." Sir James Goodhart, in his "Diseases of Children" (seventh edition), says: "Increased activity of all the physiological processes at work necessarily implies greater risks of friction between one organ and another, or even of regular breakdown. Excessive energy, if not properly regulated or adequately expended, is liable to lead to an explosion of some sort or another." With such divergences of opinion between experts of unquestioned authority, how shall lesser men decide? It may, however, be remarked that the majority of authorities who write, at any rate authoritatively, on this problem and who as teachers have great influence in formulating opinion among practitioners, acquire the larger proportion of their knowledge from so-called pathological experiences, for the greater number of children and infants whom they see are either sick or ailing. On the other hand, it is interesting to note that the opinion of that now considerable number of medical men and women who act as officers to Infant Welfare Centres is almost unanimously in favour of the belief that teething is a common cause of disturbance to health; this fact is instructive, because at "Infant Consultations" the vast majority of the infants are relatively healthy.[1] It has been claimed that dentition is a physiological process, and that since no physiological process should be accompanied by pain, dentition itself cannot be the cause of pathological phenomena. This syllogism is unsound in its major premise, in its minor premise, and in its general conclusion. There is no true distinction between a physiological and a pathological process; both are designed to preserve life in the manner best suited to meet the existing conditions of the environment. If they should happen to be accompanied by pain or other disturbance of bodily harmony so much the worse for the individual. Pain is one of the most efficient means of protecting the body against existing dangers, and is in essence physiological. Parturition is a physiological process and a distinctly painful one, especially in the case of the contracted pelvis; and so also may be the process of dentition in the contracted jaw of civilisation, as many can avow from personal memories of the cutting of the wisdom teeth. During the period of dentition many symptoms develop either as a consequence of, or coincident with, the eruption of each tooth which must give the careful observer much food for reflection. The almost invariable flush on the cheek of the healthy child, the running of the nose or the lacrymation in those less fit, the pharyngeal cough, the bronchitis or the diarrhœa in those of still poorer condition are best capable of explanation as the misdirected incidence of nervous energies, whether reflexly or by irradiation engendered by the eruption of the tooth, taking effect in organs or in situations of least resistance. This may possibly explain why when any particular function has previously been disturbed there is apt to be a recurrence of the event during the period of dentition—why, in other words, the child always cuts its teeth "with bronchitis or diarrhœa," as mothers and nurses are wont to believe.

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

THE treatment of pulmonary tuberculosis by induction of pneumothorax was introduced by Forlanini, of Pavia, in 1882, and was later, but quite independently, advocated by Murphy, of Chicago, who in his address on the Surgery of the Lung at the annual meeting of the American Medical Association in 1898 reported 5 cases. The method became popular on the continent, where a large amount of clinical and experimental work was done, of which the most important was the use of the water manometer by Saugman, of Christiania, to measure the intrapleural pressure. In this country the method was neglected for many years, but recently has come into vogue. In the *Journal of the American Medical Association* of Nov. 27th, 1915, Dr. T. B. Sachs has published an important paper on the results obtained by 24 American observers in 1145 cases. The stage of the disease is reported in 1028 cases. Of these, 88·7 per cent. were "far advanced," 10·6 "moderately

[1] An instructive chart showing the influence of dentition on curves of weight in six cases is given (Chart 7, p. 59) in the Report for 1914 by the Chief Medical Officer to the Infants' Department of the Bradford Health Committee.

advanced," and 0·7 "incipient." 77 per cent. were bilateral and 23 unilateral. Cavities were present in 53 per cent. In 23 per cent. there were complications, such as laryngeal or intestinal tuberculosis, pleural effusion, or empyema. In about half of the cases no improvement was obtained, in 29·2 per cent. temporary improvement followed, and in 21·7 per cent. arrest or cure. The large proportion of advanced cases must be taken into consideration in judging the results. Sufficient data do not yet exist to show the ultimate results, as the method has been extensively practised only in the last few years. So far it seems that permanent arrest is obtained in about 12 per cent., and a palliative effect of variable duration in about twice that number. But it must be remembered that these figures are obtained from all the cases in which the method has been tried, and include cases in which obliteration of the pleural cavity by adhesions prevented, partially or completely, the induction of pneumothorax. In cases in which the method is specially indicated the results are much better. Thus the disease was arrested in about half of the unilateral cases. Further, it must be remembered that the method is generally resorted to when all other treatment has failed. The best results are obtained before the formation of extensive pleural adhesions, and before there is marked affection of the opposite lung or irreparable loss of health. With gradual improvement of the technique and more careful selection of cases accidents during the production of pneumothorax have diminished. The nitrogen should never be allowed to enter until the manometer shows, by sustained negative pressure and free oscillations, connexion with the pleural cavity. Pleural effusion is the most frequent complication of the operation. It occurred in 113 of the cases. There is a considerable difference of opinion as to its effect on the progress of the case. Pleural shock occurred in 26 cases, but in no instance was fatal. Its symptoms vary from slight faintness to severe nervous disturbances, and fatal cases have been described. Gas embolism occurred in 3 cases, but this catastrophe should be almost impossible if the manometer readings before the admission of the nitrogen indicate that the orifice of the needle is in the pleural cavity. Dr. Sachs concludes that pneumothorax should be induced in all progressive cases of pulmonary tuberculosis which fail to respond to sanatorium treatment, regardless of the stage.

A LOST LIBRARY.

THE library of the old Corporation of English Surgeons, so rudely dispersed in 1751, had been in process of formation ever since the days of Vicary or earlier. In 1562, Thomas Vicary, serjeant-surgeon to Queen Elizabeth, left by will to the Barbers' Company "one booke called Guido and ii billes, ii bowes, ii shefes of arrowes," &c. The Guido was a work by Guido de Cauliaco or Guy de Chauliac, whose "Cyrurgia" and other works were text-books of that age. In 1591 another serjeant-surgeon, Robert Balthrop, wills his Guido to his servant, but leaves to "the companie of the Barbors and Chirurgeons of the Cittie of London the Chirurgery of that most excellent writer, John Tagaultius, the lattin booke and also the English translation that I have made thereof." This alludes to the "De Institutione Chirurgica" of Jean Tagault, published in Paris in 1543. He likewise leaves them "the Chirurgerie of the expert and perfect practitioner Ambrose Parey." Both these works he has "written into English for the love which I owe my brethren practising Chirurgerie and not understanding the Latin Tounge, and given them into the Hall for their daily use and reading both in Latin and English, and desiring that they may be kept fair and clean for my sake." These English translations have vanished as completely as the lost books of Livy, though Tagault's work was in its time so popular that it was translated into Flemish, Italian, and French, besides running through several Latin editions. Not only are books mislaid, but they are quaintly misnamed in the sixteenth century. Thus, another serjeant-surgeon "unto the Queen's Majesty, sick of body"—namely, Richard Ferris, whose portrait appears on the extreme left of the kneeling surgeons in Holbein's well-known picture—wills to the Company "a grete Pandack and another booke called a verroyce." This is probably the allusion of an unlettered practical man to the "Liber Pandectarum Medicinae" of Silvaticus, published at Venice in 1474, a gothic letter work, or to the same author's "Liber Cibalis et Medicinalis Pandectarum" (Naples, 1474), and to the "Medicina" of Averroes, published in Venice in 1482. The latter work begins with the words "Incipit liber de medicina Aueroys." Hence "verroyce." We have more certain information as to the "Tables of Morus," which Mr. Deputy Caldwell, in 1604, "freely gave to this Company to be distributed amongst the professors of chirurgery, freemen." Some 500 copies were distributed, but the professors seem to have despised them. They were thin folios of 32 pages, containing Latin tables and lists, and were probably treated as such gifts are wont to be even at the present time. One copy of the "Tabulae universam Chirurgiam complectentes, ex eruditioribus Medicis collectae," fol., London, 1584, still exists in the library of the Royal College of Surgeons of England. It is from the Pitt Collection, but the absence of names and graffiti on the fly-leaves bears witness to original neglect. During the seventeenth century a certain number of volumes, of which the titles are on record in the books of the Barber-Surgeons' Company, were added to "the new library." In 1638–39, 64 volumes were chained, which would account for the 130 yards of chain bought at this time. A chained book is given a tether measuring a trifle over two feet in length. At the end of the century the Company possessed Gerard's "Herbal," Stow's "Survey of London," Dr. Gwyn's MSS., Arris's five books on Surgery, the Anatomy of Cafferius Placentius, besides other works. In the next 45 years we can imagine the Company adding to its collection a large number of books, for books were then beginning to be published at frequent intervals. These would include in time Cheselden's classical "Osteographia," the famous plates of Albinus, and the works of Heister. It is curious to note that Hamilton, in 1794, describing an army surgeon's necessary library, which was to travel in bulk with the regimental baggage, mentions very few books printed prior to 1750. Modern medicine and surgery began only to make their appearance in print in the latter half of the eighteenth century, when the Hunters, Cullens, Monros, Pringles, and other famous men rendered their profession illustrious. But the lost library none the less probably contained many classics, such, for instance, as some 30 or so early printed books now rarely seen. Curiosities also must have abounded on its

shelves, as, for instance, works of astrology, of which De Bure gravely quotes many titles in his "Bibliographie Instructive" as late as 1764. Possibly the lost library contained some 600 volumes.

THE IRRITABLE HEART OF SOLDIERS.

IN another column we publish an article by Dr. C. Percival White and Dr. F. Hernaman-Johnson recording three cases of Graves's disease occurring in soldiers, and suggesting hyperthyroidism as a cause of the irritable heart of soldiers. All medical men who have been attending officers and men from the Expeditionary Force have become acquainted with the so-called "irritable heart." It occurs frequently in men home from the front, and is usually only of a temporary character. It is undoubtedly due to the constant strain of modern warfare, added to, in the case of officers, by the great sense of responsibility which is ever felt by them. The accumulated efforts of the disturbing elements of active service produce a profound action on the nervous system generally, and the nervous mechanism of the heart likewise feels the strain. Severe fright, great anxiety or worry, and great emotional disturbance have long been recognised as antecedents of Graves's disease, and it is not, therefore, a matter of surprise that this condition should develop in men invalided from the front. The cases described by Dr. Percival White and Dr. Hernaman-Johnson are of interest in drawing attention to this possibility, and will cause careful clinicians to look out for exophthalmos and the other symptoms characteristic of Graves's disease; but it remains for further observation before it can be definitely stated that this disease may explain many of the so-called irritable hearts. For cardiac strain producing palpitation and irregular action of the heart is of common occurrence without the appearance of the other phenomena of exophthalmic goitre.

ACUTE SPONDYLITIS.

ACUTE spondylitis is a rare condition. In the *New Zealand Medical Journal* Mr. A. Kinder has reported the following case. A boy, aged 7 years, was admitted into hospital on April 10th, 1914, with osteomyelitis of the left tibia, which was opened and drained. The temperature fell to normal, but a sinus remained. It was curetted on June 17th, and, as progress was slow, the edges were bevelled off on Sept. 23rd. Three weeks later healing was well advanced and there was a granulating surface. On Nov. 18th the temperature rose to 103° F., without apparent cause, but next day it was normal. On Dec. 1st the patient began to complain of pain in the back of the head and neck, and the temperature rose to 102°. The neck was rigid and the head retracted, and when moved was supported by the patient with his hands in the manner typical of cervical caries. Pain on movement became intense. Examination of the pharynx was negative. To eliminate cerebro-spinal meningitis lumbar puncture was performed, but the fluid was normal. The rigidity of the neck increased and the pain rapidly spread to the upper dorsal spine. Every few minutes the boy was thrown into a paroxysm of pain, the muscles being contracted in a convulsion like that of tetanus. The pains shot into the shoulders and arms. Morphia was given freely, as it was evident that the process was extending down the spinal canal and drainage offered no prospect of success. The process became severe about the first lumbar vertebra—a point where two fairly fixed portions of the spine meet. The temperature was typically septic. The boy was conscious throughout the whole illness. On Dec. 14th lateral nystagmus was present, but there were no other signs of disease of the nervous system. Lumbar puncture was again performed. The fluid was under slight pressure but sterile. Two days later the left pupil was contracted and the right semi-dilated, and both reacted sluggishly to light. This symptom was evidently due to irritation of the sympathetic fibres of the first and second dorsal nerves. The pain was as acute in the lumbar as in the cervical regions, showing that it was not due to tension but to irritation of nerve roots. He steadily became worse and died on Dec. 14th. At the necropsy, on cutting down on the laminæ to expose the cord pus was seen to exude from the ligamentum subflavum between the sixth and seventh cervical vertebræ. On removing the laminæ the extradural space was found filled with pus. The suppuration extended upwards to the third cervical vertebra and downwards to the third lumbar. No septic focus could be found in the bodies of the vertebræ. The pus yielded a pure culture of staphylococci. The vertebræ are comparatively exempt from acute osteomyelitis, the ends of the long bones seeming to offer a much more suitable nidus. In this case the recrudescence of the disease eight months after the primary illness is noteworthy. Discussing the treatment of acute cervical spondylitis, Mr. Kinder recommends that when pain in the neck and pyrexia persist for more than 24 hours, with perhaps a septic focus elsewhere, the pharynx should be palpated. If no cause can be discovered and lumbar puncture is negative a free incision should be made three-quarters of an inch from the middle line on one or both sides, the laminæ exposed, and the muscles displaced outwards till the transverse process comes into view. If pus wells up an attempt should be made to locate its origin with a probe. If it comes from a joint this should be opened and the articular process clipped away if necessary. If pus is welling up between the transverse processes an incision should be made at the posterior border of the sterno-mastoid.

EXPERIMENTAL PELLAGRA.

THE causation of pellagra has been disputed for a long time, the two main views being that it is due on the one hand to a specific infection, and on the other that it arises from a deficiency of some essential element in the dietary. In the United States of late there appears to have been an increasing belief that pellagra should be classed as a "deficiency disease," and evidence tending to support this has been found in the incidence of the malady in certain public institutions. In order to test the possibility of pellagra being produced in white adults by a restricted one-sided diet, consisting mainly of carbohydrates (cereals), two medical officers, Dr. Joseph Goldberger and Dr. G. A. Wheeler, of the United States Public Health Service, have carried out an experiment in a public institution in the State of Mississippi, with the help of certain adult inmates who volunteered for the purpose, after the nature of the test and its possible consequences had been fully explained to them.

Twelve white men were selected from these volunteers, and first of all kept under observation as to their health for about nine weeks before the experiment was begun. It was found necessary, however, owing to "prostatitis," to eliminate one of the men. The remaining 11 individuals were then placed on a diet consisting chiefly of cereals in the form of biscuits, corn-bread, fried "mush" (maize that had previously been boiled), grits, rice, and collards, along with sweet potatoes, cabbage, brown gravy, sugar, syrup, and coffee. No vegetable fats entered into the composition of the diet. The cereals were of the best quality obtainable in the local market, and each man received on an average 3·32 pounds of food per day, having a caloric value of 2952 calories. Three substantial meals were given each day. Another group of 20 men were selected as controls, and they received the ordinary mixed diet of the institution. The hygienic surroundings of the two groups were identical, the work allotted was the same for both, and the only difference between them was their dietary. In the course of five months signs of pellagra developed in six of the 11 men placed on the restricted diet, while all the members of the control group remained in good health. No case of pellagra had ever been recognised in this institution prior to the experiment. The signs of the disease in the six men included dermatitis, along with nervous and gastro-intestinal symptoms of a mild but marked kind. It is noteworthy that the dermatitis in these cases was first observed on the scrotum of each patient. It was a daily custom for the 11 men to be stripped and carefully examined, and it was in this way that the dermatitis was detected; later it appeared on the backs of the hands and elsewhere. If, however, the men had not been stripped for examination the skin manifestations of the disease on the scrotum might have passed unnoticed, at least for some time. It is therefore suggested that the affection of the scrotum in pellagra is possibly more common than has hitherto been believed. The diagnosis of the malady was subsequently confirmed by experts called in to see the cases. The results of the experiment seem to justify the conclusions of Dr. Goldberger and Dr. Wheeler that pellagra was caused in 6 out of 11 men who had consumed a restricted (cereal) diet for a period of about five months. The details of this interesting experiment are published in the United States Public Health Reports for Nov. 12th, 1915.

THE INFANTILE MORTALITY OF VANCOUVER CITY.

THE figures for infantile mortality in Vancouver City were at one time very high, but are now decreasing satisfactorily. Mr. F. T. Underhill, the medical health officer, stated on Dec. 8th last that the figures in 1911 were 270; in the two years following 256 and 232; in 1914, 198; and that the mortality would be lower in 1915. The practical example of the medical profession may have counted for something as well as their advice. A correspondent writes from British Columbia: "'Physician heal thyself' has often been quoted to our profession, and the retort has sometimes been hard to find, for, like our patients, we must all die, and ours is not one of the more healthy professions. But at least in this part of the world we can keep our children alive, as the figures for 1911 just published show the mortality of the children of medical practitioners was less than that in any other group of 1000 children. There were 1285 children of medical practitioners, with a mortality of 39; 1018 children of officers of army and navy, with a mortality of 43; 1018 children of barristers and solicitors, with a mortality of 45; 1083 children of men of no occupation with private means, with a mortality of 50; 1589 children of clergymen, with a mortality of 55."

THE DEVELOPMENT OF THE AMBULANCE TRAIN.

IT is now a commonplace that disease claimed far more victims than the bullets of the enemy in all except the more recent wars, and next to ignorance of the elementary principles of hygiene, the greatest contributing factor was the herding together of the sick in camps close to the front where everything was subservient to the military necessity of the moment, and ample opportunity existed for handing on disease, once started, to the healthy soldiers. The way of avoiding these evils is to be found in the prompt removal of the sick and wounded from the fighting area to hospitals far behind the lines where ample leisure and equipment for their adequate treatment are available. The history of the development of the means of transporting the sick and wounded is given by Mr. E. A. Pratt in an interesting chapter entitled, "Railway Ambulance Transport," in his recent book on "The Rise of Rail Power."[1] The Crimea saw the first application of the railway to this end, when the wagons used for the transport of supplies on the little military line from Balaklava to the camp before Sebastopol were used on the return journey for the conveyance of the wounded, in the sitting posture it is true, but still with greater speed and comfort than ever before in the history of warfare. In the Italian war of 1859 Dunant, who was then beginning to attract notice as the originator of the Red Cross, records that the wounded were taken by train from Brescia to Milan at the rate of a thousand a night, either lying on straw in goods or cattle trucks, or sitting up in third-class carriages. These experiences led to the suggestion by a Dr. E. Gurlt, in a pamphlet published in Berlin in 1860, to use hammocks suspended from the roof of the trucks, a suggestion which was not at once materialised owing to the unsuitability of the existing rolling stock. It was therefore not until 1862, and in America, that the first ambulance car was planned and constructed by the Philadelphia Railroad Company. This car was capable of accommodating 51 patients each on a stretcher arranged to slide in and out, with a seat for an attendant at each end of the car, which was also provided with a stove for heating soup or tea, a water-tank, and a locker. By using this car the patient could remain throughout the whole journey from field hospital to his destination on the stretcher on which he had been placed at the start. This car was the precursor in all essential points of the luxurious ambulance train as we at present know it.

AT the meeting of the Electro-Therapeutical Section of the Royal Society of Medicine on Jan. 21st, at 8.30 P.M., a paper will be read on the Simpson Light by Dr. E. P. Cumberbatch, who will also give a demonstration of the apparatus. A note on the nature of this light, its mode of production and therapeutic properties, by Mr. W. D. Harmer and Dr. Cumberbatch, will be found in this issue of THE LANCET.

[1] The Rise of Rail Power in War and Conquest, 1833–1914, by Edwin A. Pratt, with a bibliography. London: P. S. King and Son, Limited. 1915. Pp. 405. Price 7s. 6d. net.

SANITATION IN BILLETS AND CAMPS.

By ADAM WHITE, M.B., CH.B., D.T.M. & H. EDIN., D.P.H. CAMB.,

LIEUTENANT, R.A.M.C. (T.); OFFICER COMMANDING SANITARY SECTION 2/1ST NORTH MIDLAND DIVISION.

(*Concluded from p. 42.*)

CAMPS.

THE presence of bodies of troops in canvas and hut camps raises many points of sanitary interest. Under such conditions of life we have a reversion to an essentially primitive mode of existence. The inhabitants of the camp are removed from the immediate sheltering care of more or less benignant sanitary authorities, the sanitation of the area which they are, for the time being, inhabiting is under their own jurisdiction, and the degree of sanitary perfection which is obtained largely depends upon the initiative which is displayed by those in command of the unit or brigade and upon the advice given to those responsible commanders by their accredited medical advisers. Here it may be well to emphasise the fact that so far as sanitary effort is concerned the medical officer's duty is solely advisory, and that, of course, all executive authority resides in the hands of the combatant commanding officer. But it is also necessary to state that the vast majority of commanding officers are only too ready to avail themselves of, and to follow the advice given them by, their medical officers, so that the sanitary perfections or imperfections exhibited by individual camps reflect largely the amount of interest which the medical officer takes in matters hygienic.

General cleanliness and smartness of appearance are insisted on in the individual soldier as a matter of discipline, and a similar cleanly state as regards the camp area should be rigorously enforced. No scraps of any kind should be allowed to lie about or to be cast upon the ground, and since there must be a certain amount of casual litter to be disposed of, it is essential that receptacles should be provided for its reception and temporary storage till it can be dealt with in the camp incinerator. Such receptacles may take the form of small boxes or tins obtained from the quartermaster's stores, or they may be made from lengths of wood and wire-netting, after the pattern of those found in public parks. In the latter case the most convenient shape is that of a cylinder, approximately 3 feet long and 1 foot in diameter. These receptacles should not be too numerous in any camp area, the right proportion being about one receptacle to each row of huts or tents. Each receptacle should be nailed to a post at a convenient height from the ground.

It is not always easy to convince camp commandants of the necessity for the provision of these receptacles, and in the case of camps which are obviously tidy their presence need not be insisted upon; but in instances where paper and other oddments are to be found about the camp ground and when one is told that such littering of the ground is impossible to prevent, the provision of such receptacles may be advocated as a remedy.

Waste Water.

In large canvas camps where a sewer connexion cannot be obtained the disposal of waste water from kitchens, ablution places, baths, &c., is often a difficult matter. The problem we are here confronted with is that of the removal, without the help of sewers, of sullage water for a population of somewhere in the neighbourhood of 4000 men, a number of inhabitants equal to that contained in many of our smaller towns.

There is nothing else which so mars the appearance of a camp as an inefficient system of waste-water removal. In addition, a faulty disposal system produces water-logging of the soil and fouling of the ground surface, and this often to such an extent as to cause grave nuisance and probably injury to health. For these two reasons it is absolutely essential that the system of disposal should be as perfect as circumstances will permit.

In the first place, we must remember that in the majority of schemes we are going to depend upon the porosity of the ground for the removal, and it is therefore necessary that the camping ground should consist of porous soil or that, at all events, it should be possible to reach a permeable stratum at a reasonable distance from the ground surface. It will therefore be apparent that when a camp site is being selected due attention should be paid to this matter, and that, when tactical considerations permit, sites which are likely to present difficulties in this direction should be ruled out as being unsuitable. Even if a stream is available in the neighbourhood of the camp it is unlikely that, in the case of temporary encampments, with the means of purification at our disposal, we should be able to produce an effluent which it would be permissible to pass directly into a water-course.

Preliminary Treatment of Waste Water.

Laying aside, as being generally impracticable, direct passage into a stream, we may say that there are three principal methods by which, either alone or in combination, we can dispose of waste water. These three methods are surface irrigation, subsoil irrigation, and disposal into soakage pits.

Before the waste is in a state fit to be disposed of by any of these three procedures it must be treated in order to remove from it as much of its added impurity as possible and, in particular, any contained material which will increase the difficulties of disposal. The principal ingredients which come under the latter category are grease and soap, the former predominating in kitchen waste and the latter being in excess in the case of water coming from ablution places. Both these constituents militate against the success of any scheme by clogging up the interstices of the soil, and in the case of surface irrigation they have the additional disadvantage that they produce an unpleasant smell and an unsightly appearance of the ground. In addition to the grease and soap, all gross impurities such as particles of meat and vegetables must be removed, and over and above this, it should be our aim to extract as much as possible of the finer suspended matter.

A greater degree of purification than that outlined above it will seldom be possible to attain to, and it will therefore be apparent that our final effluent must be a highly impure fluid quite unsuitable for passage into a water-course. Anything in the nature of actual purification of the waste cannot be expected. The ancient myth that gorse or bracken will act as an efficient grease and soap retaining medium is now happily exploded, and although in the case of the type of camp of which we are at present speaking it is eminently desirable to have the sullage water disposal system as simple as possible, it is little short of flying in the face of providence to rely on anything so childish as the typical gorse grease trap which has

obtained the sanction of usage but certainly not the blessing of success.

The unsatisfactory results which are obtained with this and with other similar primitive forms of trap led to the initiation of experiments, which were attended by varying degrees of success, with various combinations of coke-breeze filters and sedimentation pits. One has found that the end result which is obtained is influenced greatly by the character of the water as regards its degree of hardness, by the methods adopted in the cleansing of cooking vessels (whether much or little water is used in the operation and whether soda is employed), by the size of the filter chambers, by the character of the filtering medium used, and by the capacity of the sedimentation pits.

Methods of Disposal of Waste Water.

The following is a rough description of a system which was suggested by Captain J. M. Hamill, and which was installed in some of the camps occupied by troops belonging to the 59th Division.

The waste water from the ablution benches and kitchen wash benches is led into a coke-breeze or sand filter grease trap, thence through a sedimentation pit, and finally through a second coke-breeze or sand filter. Before it reaches the first trap the waste is passed through a sieve made of perforated corrugated iron in order to keep back gross particulate matter. The filter traps are chambers made of wood well tarred and pitched, or of bricks set in cement or puddled clay. Their approximate size is 4 feet long by 2 feet 6 inches broad and 3 feet deep. They contain a cross partition so placed that the trap is divided into two compartments, one being 3 feet long and the other 1 foot long. This partition reaches only to a point about 6 inches from the floor of the chamber, so that the two compartments communicate at their lowest points. Both chambers are filled to within 6 inches of the top with coke-breeze or sand.

As regards the ultimate disposal of the waste after its purification, the simplest method is undoubtedly that of turning it into soakage pits. These pits should be made from 4 to 6 feet square, their depth being mainly governed by the distance from the surface of the ground at which a permeable stratum is reached; for if these pits are to work properly, and to be prevented from becoming mere stagnant and more or less permanent collections of waste water, it is essential that a porous stratum should be actually cut into. The principal advantages of efficient soakage pits are that they take up little surface space, and that if they become fouled they can be filled in and fresh pits dug.

Surface irrigation and subsoil irrigation are specially useful as adjuncts to a soakage pit. Their great disadvantage is the comparatively large amount of land which is required for their efficient working. This disadvantage is most evident when either of these systems is used alone. When they are used to take the overflow from soakage pits the disadvantage is not so apparent, as in this case a large proportion of the waste is dealt with by the pit, and only a relatively small amount remains to be dealt with by the complementary system.

When a sufficiency of sloping ground is available, either surface or subsoil irrigation can be applied with advantage, the trenches or drains, as the case may be, being made to follow the contours of the irrigation area. These trenches or drains should have a depth and breadth of from 12 to 18 inches, and in the case of drains the channel should be filled in with tins which have been passed through the incinerator or with fair-sized pieces of hard and well-fired clinker. The tins or clinker will allow passage for the waste and at the same time will support the replaced turf.

Food Store and Kitchen: Disposal of Refuse.

In all camps the food store should be a separate and distinct structure from the kitchen. In too many cases the one is only a part of the other. The store should be placed as far as possible from latrines and urinals, but conveniently near the cookhouse. Special attention should be paid to adequacy of space, to absence of damp, to lighting, and to ventilation, and means should be taken to prevent the access of flies to the food. In the case of hut camps this latter end can be secured by the provision of fly-proof gauze over the windows, but in the case of tents freedom from flies is not so easy to obtain. However, much can be done by keeping the food as long as possible in its original packing and by covering exposed food with muslin or similar cloth.

The means for cleansing cooking and eating utensils and for washing vegetables are often found to be markedly defective. At least some form of bench, no matter how simple, should be provided for this purpose, and washing and cleansing should be allowed to be done only at the place appointed. If possible, water should actually be laid on to this bench, and the waste should be run into a grease filter trap of the form described.

In most camps kitchen refuse, which it would be wasteful to burn, is removed under contract, and for its reception pending removal, and also for the temporary reception of garbage which is to be burned, there should be provided suitable receptacles. These should be cylindrical in shape, constructed of metal, watertight and covered. In a recent memorandum it was recommended that camp kitchen refuse should be classified under four heads—i.e., waste bread, bones and meat waste, cookhouse and table refuse, tins and tea leaves, &c.; so that at least four such receptacles will be needed. Frequent inspections are necessary in order to ensure that garbage which should be incinerated is not placed in receptacles meant to hold otherwise disposable material.

All waste material which it is not profitable to retain should be burnt in some form of incinerator. Most of the incinerators described in the various text-books give good results, but the one which is most generally useful in the average camp is made in the shape of a square pit 4 feet high and 4 feet square. There should be an opening about 15 inches square at ground level on each side, and just above these openings some simple form of fire-grate to support the burning materials should be inserted. In canvas camps these pits are best made of dry brickwork backed with turf, but in the case of hut camps the incinerator should be of a less makeshift type and should be constructed of 9-inch brickwork set in cement.

Disposal of Excreta.

Under camp conditions the methods which may be adopted for the disposal of fæces and urine are three in number—viz., water carriage, the use of bucket latrines, and the adoption of some form of immediate earth burial.

In hut camps where a sewer connexion can be obtained water carriage should be installed, the form of apparatus adopted being some variety of trough closet. In hut camps in which for any

reason it is impracticable to adopt water carriage bucket latrines should be used. In this case the building intended to house the buckets should have a concrete floor which can be readily cleansed, and great pains should be taken to make sure that efficient ventilation is provided. This is best secured by the provision of adequate openings situate under the eaves. In canvas camps the excreta-disposal system may be in the form of a bucket latrine, or some form of earth burial may be installed.

Bucket Latrines.

In the case of bucket latrines great care must be exercised in their method of use and in the manner in which the buckets are cleansed and emptied if these latrines are to be prevented from becoming an intolerable source of nuisance. The buckets should be of convenient size to be placed under the seat of the latrine, they should be of metal, and water-tight. In order to reduce the risk of fæcal matter being deposited on the ground, there should be not more than one inch of clearance between the top of the bucket and the seat of the latrine, and, in addition, there should be some form of guard or stop to hold the bucket accurately below the aperture in the seat. If at all practicable, the buckets should be provided with covers which can be clamped on, as then the buckets can be removed when full to the place where the excreta are to be disposed of instead of their being emptied into some form of cart in the immediate neighbourhood of the latrine itself. Frequently, however, the buckets are not provided with covers and their immediate emptying takes place into a tank cart which is used for the transport of the excreta from the latrine to the place of ultimate disposal.

Before being placed for use each bucket should be well smeared over on the inside with crude mineral oil, and there should be placed in it cresol solution (strength 1 ounce to the gallon of water) to a depth of 3 to 4 inches. The object of these procedures is to discourage the presence of flies and to facilitate the emptying of the buckets. No bucket should be allowed to become more than about half full before being taken out of use, and the provision of buckets should be on a scale sufficiently liberal to make this possible. After emptying, the buckets should be swilled out with cresol solution. Buckets or tubs used as urinals should be treated in the same manner as that outlined above.

The Trench Latrine System.

One great objection to the bucket system is that the bucket itself is, of course, merely a stage in the scheme, for the buckets have to be emptied either in the vicinity of the place of use or elsewhere, and there is a considerable risk of spillage taking place during this operation. The alternative system, that of immediate earth burial, has few of the disadvantages inherent to the bucket system, and, in addition, there is no difficulty with regard to the ultimate disposal of the excreta, for the place of ultimate disposal coincides with the situation of primary deposition.

There are many varieties of the immediate earth burial or trench latrine system, but the two most important are known respectively as the deep trench and the short, shallow trench. The principal difference between these two varieties is that, in the case of the first named, the trench is anything upwards of 2 feet wide and 2 feet deep, and as long as the ground available will allow and the requirements demand; while in the case of the last named the trench is from 1 to 2 feet deep, 1 foot broad, and 3 feet long.

From practically all points of view the short, shallow trench is much the more satisfactory of the two varieties. In the case of the deep trench it is practically impossible to ensure that the excreta will be covered with earth immediately after the act of defæcation, whereas in the case of the shallow trench it is comparatively easy to ensure this. There is therefore less risk of nuisance from smell and of the carriage of disease by flies when shallow trenches are adopted.

In addition, ground which has been the site of shallow trenches can be re-used as a latrine area within a measurable time, whereas the deep trench leads to a more or less permanent fouling of the ground. In other words, when using the shallow trench we are utilising the services of nature to the fullest extent, for, as has been shown by Dr. George Reid, county medical officer of Staffordshire (lately divisional sanitary officer of the 59th Division), and others, fæcal matter deposited in the shallow trenches is rapidly dealt with by the organisms of the ground and cannot be recognised as excrement at the end of a period of time which varies for different soils, but which can be stated as being, on the average, about six weeks.

The rate of disappearance of the fæces varies roughly inversely with the depth of burial, and at a certain depth disappearance does not take place at all, and the fæcal matter remains more or less in its original state for many years. The best results are obtained when the trenches are made not deeper than 15 inches, and the working rule generally adopted is to adhere to a depth of 1 foot. When this specification is acted upon even paper, if of suitable texture, disappears in the same time as that required for the dissolution of the excrement. The 1 foot of breadth is postulated as being a convenient space for a man to straddle over, and, moreover, this comparatively small space makes it as easy as is possible for the user of the latrine actually to cover the fæces with earth.

In the digging of these latrines great care should be exercised to ensure that the turf is removed in one piece and that all edges are made sharp and straight and all angles clean-cut. The earth should be finely broken up and placed at the end of the trench, so that after each act of defæcation the user may cover the dejecta with earth. Small wooden scoops or small tins should be provided for this purpose, and it should be impressed upon all concerned that the efficient working of these latrines depends greatly upon the degree of conscientiousness which is displayed in the gradual filling in of the trench with earth. When the contents of the trench reach to about 4 inches from the ground surface the remaining earth should be filled in and the turf then replaced.

Provision of Separate Urinals.

Where trench latrines are installed, distinct and separate urinals must be provided, as these latrines cannot be used for the disposal of urine. Many of the urinals which are described in the text-books do not give satisfactory results, but the following is a description of a type which has adequately answered the purpose for which it is intended.

A pit is dug 4 to 6 feet square and of such a depth as it is necessary to go in order to reach a permeable stratum. The depth required varies, of

course, in different localities, but it is generally possible to find a convenient situation in the camping ground at which porous soil can be reached within 10 or 12 feet of the surface. This pit is filled to within, approximately, 2 feet of the ground level with burnt tins, large stones, or coarse clinker. Four 9-inch drain pipes, one at each corner, are inserted so that their lower ends project some distance into the collection of tins and their upper ends protrude above the surface of the ground to a height of 18 to 24 inches. The remainder of the pit is then filled in with earth and the surface re-turfed. When the work is completed only the four projecting pipes are visible. The pipes should be treated daily with crude mineral oil, as in the case of latrine buckets.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE WEEK'S SUBSCRIPTIONS.

THE subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:—

	£	s.	d.
Pharmacists' V. T. C. Camp (collected at), per Commandant E. A. Atkins	4	11	6
Dr. A. E. Causton	2	2	0
Mr. A. Chapman	0	11	11
Mr. A. E. Mills	0	7	2
B. M. A., South Indian Branch (per the Hon. Treas.)	5	6	10

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

NATIONAL HEALTH INSURANCE.

Insurance Practice During War.

A CORRESPONDENT of the *Leeds Post* complains with some justice of the hardship imposed upon medical men carrying on insurance practice for themselves and for others in circumstances of severe strain by the clerical work which such practice necessitates. He states that the secretary of the North Riding Insurance Committee has been instructed to insist upon "all records, &c., being done as correctly, or even more correctly than in peace time, and to threaten that the patriotic absentee shall not receive his payment unless these records are kept." He adds that since war broke out it has been made compulsory that a patient should be seen on the day on which his certificate is given, so that a medical man may have to travel several miles in order to sign a certificate even though he may have had to visit the patient on the preceding day. The writer, who signs himself "One of the Absentees," makes two points with regard to these matters, urging, firstly, that it is not much encouragement to practitioners who enter the service of the Crown to know that they may lose their money for insured patients, not through their patients being neglected, but through the records sent in with regard to them being defective, while those doing the work are also hampered in performing it; and, secondly, that medical men are being compelled to carry out strictly their part of a bargain which is not being fulfilled with equal exactness by those with whom they made it. He urges in this connexion that practitioners are not receiving under the Insurance Acts the immunity from bad debts which was held out as one of the merits of the insurance system and as one of the inducements to them to serve on the panels. Strictly speaking, the term "bad debts" is hardly applicable to the delayed payments made in instalments by Insurance Committees in view of the temporary financial circumstances which affect them. No doubt the money owed by the Insurance Committees will in all cases be paid in full in the end, and though a business man might describe such debtors as "long-winded," he would hardly treat their obligations as "bad debts." Undoubtedly, however, prompt settlement was looked for when panel practice was instituted, and at any other time but the present it would rightly be insisted upon. After the war the question will properly be raised if steps are not then taken to ensure the punctual receipt of fees, which in no cases are excessive in view of the work done in earning them. With regard to the keeping of accurate records referred to above, it is fair to the Insurance Committees to point out that these are generally necessary with a view to the adjustment of the fees which will have to be paid in respect of the work done.

The Certification Agreement in Ireland.

The Insurance Commissioners have now issued to medical men who have signed the agreement with them as "medical certifiers" a memorandum of instructions which, as was promised, modifies in important particulars certain of the clauses in the agreement itself. The instructions in the memorandum are declared to be instructions issued under one of the clauses of the agreement, and thereby binding on medical certifiers. The most important modification, from the point of view of medical ethics, is concerning the duty of a certifier who is asked to examine and certify for a person who is under the care of another medical man. It is now definitely laid down "that a medical certifier *must refuse* to examine any such person if the certifier knows that he is being treated by another medical certifier, unless the latter has refused to issue a certificate." The exception stated in the last-quoted clause is intended to permit a member to ask a second medical man for a certificate in case he should think that his own medical attendant has unfairly refused to issue a certificate. Moreover, "a medical certifier would also be justified in refusing to examine or issue a certificate to an insured or exempted person if he is satisfied and is able to satisfy the Commissioners that such person is the patient of a doctor who, though not a medical certifier, is prepared to issue free of charge such certificates as may be required." The Commissioners appear to have taken pains to satisfy legitimate professional demands on this point. In the event of a certificate being refused from any cause the certifier must forthwith notify the Commissioners. With regard to complaints against certifiers, the Commissioners may either deal with the matter by correspondence, refer it to a Local Medical Committee, or investigate it at a special inquiry. In any case the final judgment rests with the Commissioners. The extreme penalty for an offence will be termination of the office held by the certifier, but the Commissioners may inflict a monetary penalty for lesser offences, no fine, however, to exceed £5. Examples are given of the offences the Commissioners have in mind. A paragraph is devoted to explanation of the difficult term "incapacity for work." In the case of short illnesses and during the earlier stages of prolonged illnesses, incapacity on the part of the insured person to follow his ordinary occupation would be the test of title to benefit according to the present general practice of Approved Societies and to the practice of Friendly Societies in the past. In the case of prolonged illnesses other considerations arise, and it may be necessary to think of the possibility of the member taking up some other remunerative occupation, which could reasonably be regarded as open to him, having regard both to the state of his health, his previous experience and training, local conditions, and other circumstances of the case. The decision in such cases remains one of considerable difficulty. On the whole, the memorandum is helpful, and is evidently framed with a desire to work the new system fairly to all parties.

BRIGHTON AND THE INDIAN WOUNDED.—It is officially known that no more Indian wounded are to be accommodated at Brighton. Kitchener's Hospital, occupying the original Poor-law institution on the Race Hill, has already been evacuated. The patients have been gradually removed to the Royal Pavilion Hospital and discharged from there on convalescence. Extensive alterations are now being made at Kitchener's Hospital with a view to adapt it for British wounded. In round figures some 5000 Indian wounded have been treated at the Brighton Hospital, and the very small percentage of deaths speaks volumes for the work of the distinguished medical staff.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been entered as Surgeons for temporary service in His Majesty's Fleet:—Dated Dec. 18th: William McHutchison Binning. Dated Dec. 23rd: Roy Russell Kerr. Dated Dec. 28th: Edward Pierce Llewellyn Hughes. Dated Dec. 29th: Robert Aitken. Dated Dec. 31st: Joseph Patrick Fehily.

The following appointments have been notified:—Temporary Surgeons: A. G. Simmons and R. R. Kerr to the *Victory*, additional, for Haslar Hospital; E G. B. Carpenter to the *Victory*, additional, for Portland Hospital; J. Pratt, D.S.C., to the *Victory*, additional, for disposal; L. S. Fry to the *Bellerophon*; G. MacL. Blair to the *Blake*; G. W. M. Findlay, J. T. Wilmot, W. McH. Binning, and W. H. Scott to the *Pembroke*, additional, for Chatham Hospital; J. T. E. Evans to the *Pembroke*, additional, for disposal; G. Lilico to the *Conqueror*; R. K. Shaw to the *Wildfire*, additional, to be lent for duty at R.N.A.S. Training Establishment; and T. W. Drummond to the *Donegal*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Ernest Brodribb is placed temporarily on the half-pay list on account of ill-health (dated Dec. 18th).

The undermentioned Captains to be temporary Majors:—Dated Jan. 2nd: Edward K. Martin, Joseph Dalrymple, and Thomas R. Elliott.

Temporary and Honorary Captain William P. S. Branson to be temporary Honorary Major whilst serving with No. 1 British Red Cross (Duchess of Westminster's) Hospital (dated Dec. 1st).

The undermentioned temporary Lieutenants to be temporary Captains:—

Dated Oct. 21st: Charles G. H. Moore and Garnett W. Twigg.

Dated Nov. 7th: John T. McCullagh.

Dated Nov. 10th: Joe D. Yule.

Dated Nov. 24th: Fred A. R. Hacker.

Dated Jan. 2nd: James Keenan.

Dated Dec. 10th: Francis Robert Seymour to be temporary Captain.

The undermentioned temporary Lieutenants relinquish their commissions:—

Dated Nov. 9th: Henry V. Swindale.

Dated Nov. 10th: William Wallace Woods.

Dated Nov. 28th: Thomas Perrin.

Dated Dec. 17th: George W. Clark.

The undermentioned to be temporary Lieutenants:—

Dated Dec. 1st: George Herbert Simpson.

Dated Dec. 4th: Alfred Tulloch Thompson, Tom Stanbury Brook, Allan Barrett, John Alexander Harper, James Appleyard, Charles Henry Mossop, James Norman Jackson Hartley, Basil Patrick Campbell, Colin Guy Hirst Campbell, Charles Booth Jones, Roland Sinclair, William Leslie, and Matthew Wright Talbot.

Dated Dec. 6th: John Francis Lambie, Solomon David Bridge, Frank Whinfield Bartlett, Arthur Owen Evans, Purser Davies, James Gordon Bell, Cecil Berry, Frederick Hugh Young, Augustin Pownall Fry, Edward Purcell, Rupert Cecil Lowe, Frederick Michael Bishop, and James Arthur Venning.

Dated Dec. 7th: Robert Archibald MacNeill, Robert Townley Slinger, Horace Mather, William Arthur Berry, William Adam Paterson, John Charles Wilson, James Christopher Wadmore, and William Hackett Broughton.

Dated Dec. 8th: George Burns Salmond, Raymond Brewitt Taylor, John Tudor Griffiths, Daniel Colville Adam, Philip Dennis Scott, Alexander Erskine Clark, Herbert Andrew Watney, William Bird Loveless, and George Ellis.

Dated Dec. 9th: Charles James Pentland, John Thomas O'Boyle, Thomas Jones Lloyd, Godfrey Russell Potter, Vyvyan Kendall Sadler, and David Irving Anderson.

Dated Dec. 10th: Harry Joseph Cooper, William Thomson Brown, George Kee, Everard Roney Grieveson, William Joseph Spearing, George Adams MacFarland, John Clarke Mead, James Milne Hermon, Charles Dyson Holdsworth, Henry Joseph Keane, Charles William Julius Dunlop, William Joseph McLearn Baird, William Hammond Hodgson, John Christie Forbes, Horace Macaulay Mills, Edward Wilfred Kirk, Robert Milne Lang, and John William Hilliard.

Dated Dec. 11th: Ronald Campbell Cooke.

Dated Dec. 12th: John Wesley Harvey.

Philip Gordon Capon to be temporary Lieutenant, whilst employed as a Dental Surgeon (dated Dec. 4th).

The undermentioned to be temporary Honorary Lieutenants:—

Dated Dec. 10th: Basil Graves and William Henry Marshall.

Oversea Contingents (Canadian Army Medical Corps).—H. MacLaren to be temporary Captain (dated Nov. 19th).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Captain Samuel Wright is placed temporarily on retired pay on account of ill-health.

Lieutenant Andrew C. Cassells is placed temporarily on retired pay on account of ill-health.

Lieutenant (on probation) John B. Cavenagh is confirmed in his rank.

TERRITORIAL FORCE.

Royal Army Medical Corps.

East Anglian Field Ambulance: Lieutenant Arthur E. Tait to be Captain.

East Lancashire Field Ambulance: Maior Thomas Holt, from West Lancashire Field Ambulance, to be Major.

North Midland Field Ambulance: Major Andrew E. Hodder to be temporary Lieutenant-Colonel. Captain Arthur E. Tait, from East Anglian Field Ambulance, to be Captain.

South Midland Mounted Brigade Field Ambulance: Lieutenant William Vincent Wood to be Captain.

South Midland Field Ambulance: Lieutenant Walter M. Cox, from Attached to Units other than Medical Units, to be Lieutenant. Lieutenant Walter M. Cox to be Captain.

Northumbrian Field Ambulance: Captain Wilson H. Morrison, from Attached to Units other than Medical Units, to be Captain. Lieutenant Christopher Rogers to be Captain.

Northern General Hospital: Lieutenant-Colonel Harry Littlewood, from the list of officers whose services are available on mobilisation, is temporarily placed on the permanent personnel. The undermentioned Lieutenants to be Captains: Balfour McKean and Robert P. Anderson. Captain Henry J. Smith and Captain Basil H. C. Lea-Wilson are seconded for duty with East Anglian Field Ambulance.

Southern General Hospital: The undermentioned Captains to be Majors: Charles E. Bean and Frederick G. Aldous.

London General Hospital: Lieutenant Charles H. J. Fagan to be Captain.

Home Counties Divisional Sanitary Section: Frank Thomas Herbert Wood to be Lieutenant.

London (City of London) Sanitary Company: Henry Duguid to be Lieutenant. Captain Charles J. D. Gair is restored to the establishment.

London Sanitary Company: Lieutenant Arthur G. Whitfeild to be Captain.

Highland Divisional Sanitary Section: Alexander Fraser MacBean to be Lieutenant.

West Lancashire Casualty Clearing Station: Lieutenant Theodore H. Somervell to be Captain.

Scottish General Hospital: Lieutenant Patrick T. Catto to be Captain.

Supernumerary for Service with the Officers Training Corps.—The undermentioned Lieutenants to be temporary Captains whilst serving with the Medical Unit of the University of London Contingent, Senior Division, Officers Training Corps: William Gilliatt and Richard D. Maxwell.

Attached to Units other than Medical Units.—Captain William G. Macfee to be Major. Lieutenant Wilson H. Morrison to be Captain. Frank Mainwaring Hughes and Edward Mever de Jong to be Lieutenants.

NEW YEAR HONOURS.

In the list of New Year Honours the following members of the services are mentioned: Major George Andreas Berry, R.A.M.C. (T.), has been made a Knight; Surgeon-General Sir James Porter, R.N., and Temporary Surgeon-General Sir William Watson Cheyne, R.N., were made Knight Commanders of St. Michael and St. George; and Surgeon-General Guy Carleton Jones (Director of Medical Services, Canadian Expeditionary Force) a Companion of the same Order. In the Order of the Bath Fleet-Surgeon Arthur Gaskell, R.N., Surgeon-General William Henry Norman, R.N., Temporary Surgeon-General Humphry Davy Rolleston, R.N., and Colonel William Westropp White, I.M.S., received Companionships; and in the Royal Victorian Order, Surgeon-General Sir Anthony A. Bowlby was made a Knight Commander; and Staff-Surgeon Robert Joseph Willan, R.N., a Member. Lieutenant-Colonel Robert Charles Macwatt, I.M.S., received a C.I.E.

DEATHS IN THE SERVICES.

Sir George Scott Robertson, K.C.S.I., the defender of Chitral Fort, who died on Jan. 2nd, aged 64, was educated at Westminster Hospital Medical School and joined the Indian Medical Service in 1878. In the two following years he saw service in the Afghan War, and after acting as civil surgeon in the United Provinces became Agency Surgeon at Gilgit. In 1891-92 he was the chief political officer with the Hunza-Naga Expedition. Most people know the story of the siege of Chitral Fort in 1895, and Sir George Robertson received the well-earned K.C.S.I. for his courageous and successful defence of the fortress. He was elected M.P. for Central Bradford in 1906.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 largest English and Welsh towns with populations exceeding 50,000 persons at the last Census, 6019 births and 5183 deaths were registered during the week ended Saturday, Dec. 25th, 1915. The annual rate of mortality in these towns, which had been 18·5, 17·1, and 15·7 per 1000 in the three preceding weeks, further declined in the week under notice to 14·9 per 1000 of their aggregate population, estimated at 18,136,180 persons at the middle of the year 1914. During the first 12 weeks of the fourth quarter of last year the mean annual death-rate in these towns averaged 15·4, against a corresponding rate of 16·1 per 1000 in London. The annual death-rate in the week under review ranged from 5·7 in Ilford, 6·8 in Enfield, 7·3 in Acton, 7·4 in Leyton, and 7·7 in Barnsley, to 21·2 in Wolverhampton and in Dewsbury, 21·6 in Stoke-on-Trent, 21·8 in West Bromwich, 22·7 in Middlesbrough, and 23·4 in Lincoln.

The 5183 deaths from all causes were 279 fewer than in the previous week, and included 319 which were referred to the principal epidemic diseases, against numbers declining from 373 to 298 in the four preceding weeks. Of these 319 deaths, 84 resulted from measles, 69 from whooping-cough, 68 from infantile diarrhœal diseases, 61 from diphtheria, 28 from scarlet fever, and 9 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·0, against 0·9 per 1000 in the previous week. The deaths attributed to measles, which had been 93, 81, and 75 in the three preceding weeks, rose to 84, and caused the highest annual death-rates of 2·0 in Ipswich, in Swindon, and in Leicester, 2·1 in Gloucester, and 3·8 in Burnley. The deaths referred to whooping-cough, which had been 63, 47, and 60 in the three preceding weeks, further rose to 69, of which 20 were registered in London, 5 each in Manchester and Leeds, 4 in Birmingham, and 3 each in Lincoln and Sheffield. The deaths from diarrhœa and enteritis (among infants under 2 years), which had been 98, 103, and 68 in the three preceding weeks, were again 68 in the week under review, and included 15 in London, 8 in Birmingham, and 4 each in Manchester and Darlington. The deaths attributed to diphtheria, which had been 62, 74, and 65 in the three preceding weeks, further fell to 61, of which 9 occurred in London, 6 in Liverpool, 4 each in Stoke-on-Trent and Coventry, and 3 in Birmingham. The deaths referred to scarlet fever, which had been 20, 22, and 19 in the three preceding weeks, rose to 28, and included 6 in London, and 2 each in Tottenham, Birmingham, Liverpool, Preston, and Sheffield. The fatal cases of enteric fever, which had been 12, 11, and 11 in the three preceding weeks, fell to 9, and included 2 each in London and Leeds.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 3110 to 2582 in the eight preceding weeks, further declined to 2462 at the end of the week under notice; 206 new cases were admitted during the week, against 278, 282, and 245 in the three preceding weeks. These hospitals also contained on Saturday, Dec. 25th, 1915, 1465 cases of diphtheria, 48 of enteric fever, 24 of measles, and 12 of whooping-cough, but not one of small-pox. The 1345 deaths from all causes in London were 71 fewer than in the previous week, and corresponded to an annual death-rate of 15·5 per 1000. The deaths referred to diseases of the respiratory system, which had been 516, 438, and 357 in the three preceding weeks, further fell to 329 in the week under review, but were 59 above the number registered in the corresponding week of the previous year.

Of the 5183 deaths from all causes in the 96 towns, 202 resulted from different forms of violence and 428 were the subject of coroners' inquests, while 1460 occurred in public institutions. The causes of 50, or 1·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Manchester, Sheffield, Leeds, Bristol, Hull, and in 58 other smaller towns. Of the 50 uncertified causes, 19 were registered in Birmingham, 7 in Liverpool, and 2 each in Stoke-on-Trent, Southend-on-Sea, Southport, Preston, Bradford, Darlington, South Shields, and Gateshead.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 6824 births and 5784 deaths were registered during the week ended Saturday, Jan. 1st. The annual rate of mortality in these towns, which had declined from 18·5 to 14·9 per 1000 in the four preceding weeks, rose in the week under notice to 16·6 per 1000 of their aggregate population, estimated at 18,136,180 persons at the middle of the year 1914. During the 13 weeks of the quarter just ended the mean annual death-rate in these towns averaged 15·5, against a corresponding rate of 16·2 per 1000 in London. In the week under review the death-rate ranged from 7·5 in Southend-on-Sea, 8·7 in Wimbledon, 9·4 in Tottenham, 9·7 in Ilford, and 9·8 in Merthyr Tydfil, to 22·3 in Stockport and in Gateshead, 22·6 in Blackpool, 22·9 in Leicester, 23·3 in St. Helens, 24·5 in Bath, and 24·7 in Carlisle.

The 5784 deaths from all causes were 601 in excess of the number in the previous week, and included 355 which were referred to the principal epidemic diseases, against 298 and 319 in the two preceding weeks. Of these 355 deaths, 100 resulted from measles, 80 from infantile diarrhœal diseases, 79 from diphtheria, 60 from whooping-cough, 22 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The annual death-rate from these diseases was equal to 1·0 per 1000, and coincided with that recorded in the previous week. The deaths attributed to measles, which had been 81, 75, and 84 in the three preceding weeks, further rose to 100, and caused the highest annual death-rates of 1·2 in Nottingham, 2·0 in Grimsby, 2·1 in Gloucester, 2·3 in Bristol, 2·9 in Stockport, and 3·4 in Leicester. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 103, 68, and 68 in the three preceding weeks, rose to 80, and included 24 in London, 6 in Liverpool, and 5 each in Birmingham, Leicester, and Leeds. The fatal cases of diphtheria, which had been 74, 65, and 61 in the three preceding weeks, rose to 79, of which 15 were registered in London, 6 in Birmingham, 4 in Hull, and 3 each in Stoke-on-Trent, Liverpool, St. Helens, and Oldham. The deaths attributed to whooping-cough, which had been 47, 60, and 69 in the three preceding weeks, fell to 60, and included 12 in London, 6 in Sheffield, 4 each in Birmingham and Liverpool, and 3 each in Coventry, Leicester, and Manchester. The deaths referred to scarlet fever, which had been 22, 19, and 28 in the three preceding weeks, fell to 22, of which 6 occurred in London, 3 in Manchester, and 2 in Darlington. The fatal cases of enteric fever, which had been 11, 11, and 9 in the three preceding weeks, rose to 14, and included 3 in Southampton and 2 each in Bolton and Manchester.

The number of scarlet fever patients under treatment in the Metropolitan Asylum Hospitals and the London Fever Hospital, which had steadily declined from 3110 to 2462 in the nine preceding weeks, were 2464 on Saturday, Jan. 1st. 254 new cases were admitted during the week, against 282, 245, and 206 in the three preceding weeks. These hospitals also contained on the same date 1490 cases of diphtheria, 51 of enteric fever, 31 of measles, and 12 of whooping-cough, but not one of small-pox. The 1503 deaths from all causes in London were 158 in excess of the number in the previous week, and corresponded to an annual death-rate of 17·4 per 1000. The deaths referred to diseases of the respiratory system, which had declined from 516 to 329 in the four preceding weeks, rose to 346 in the week under notice, but were 216 fewer than the number in the corresponding week of the previous year.

Of the 5784 deaths from all causes in the 96 towns, 238 resulted from different forms of violence and 525 were the subject of coroners' inquests, while 1676 occurred in public institutions. The causes of 71, or 1·2 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, and in 64 other smaller towns. Of the 71 uncertified causes, 18 were registered in Birmingham, 10 in Liverpool, 4 in Preston, and 3 each in London, Bootle, Southport, and Rochdale.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of 1915, 964 births and 765 deaths were registered during the week ended Saturday, Dec. 25th, 1915. The annual rate of mortality in these towns, which had been 22·4, 18·7, and 19·7 per 1000 in the three preceding weeks, fell to 17·0 per 1000 in the week under notice. During the first 12 weeks of the fourth quarter of last year the mean annual death-rate in these towns averaged 17·9, against a corresponding rate of 15·4 per 1000 in the large English towns. Among the several towns the death-rate during the week ranged from 10·8 in Hamilton, 11·5 in Kirkcaldy, and 12·4 in Ayr, to 18·9 in Coatbridge, 23·5 in Perth, and 25·4 in Greenock.

The 765 deaths from all causes were 123 fewer than the number recorded in the previous week, and included 50 which were referred to the principal epidemic diseases, against numbers declining from 87 to 64 in the three preceding weeks. Of these 50 deaths, 16 resulted from measles, 12 from scarlet fever, 11 from infantile diarrhœal diseases, 8 from diphtheria, 2 from whooping-cough, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·1, or 0·1 per 1000 higher than that recorded in the large English towns. The deaths attributed to measles, which had been 31, 24, and 24 in the three preceding weeks, fell to 16, and included 4 each in Glasgow and Coatbridge, and 3 each in Greenock

and Hamilton. The deaths referred to scarlet fever, which had been 11, 20, and 11 in the three preceding weeks, numbered 12, of which 4 occurred in Aberdeen and 2 each in Glasgow, Edinburgh, and Dundee. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 17, 12, and 8 in the three preceding weeks, rose to 11, and included 5 in Glasgow and 2 in Aberdeen. The fatal cases of diphtheria, which had been 21, 19, and 14 in the three preceding weeks, further fell to 8, and included 2 each in Glasgow, Dundee, and Paisley. The deaths from whooping-cough were registered in Glasgow and Greenock, and that from enteric fever in Glasgow.

The deaths referred to diseases of the respiratory system, which had declined from 322 to 208 in the four preceding weeks, further fell to 155 in the week under notice, but were 20 in excess of the number recorded in the corresponding week of the previous year. The deaths from various forms of violence numbered 28, against 17 and 38 in the two preceding weeks.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of last year, 991 births and 782 deaths were registered during the week ended Saturday, Jan. 1st. The annual rate of mortality in these towns, which had been 18·7, 19·7, and 17·0 per 1000 in the three preceding weeks, rose to 17·4 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 17·9, against a corresponding rate of 15·5 per 1000 in the large English towns. In the week under review the death-rate ranged from 7·6 in Falkirk, 10·5 in Clydebank, and 11·8 in Perth, to 24·8 in Coatbridge, 27·0 in Hamilton, and 28·0 in Greenock.

The 782 deaths from all causes were 17 in excess of the number in the previous week, and included 74 which were referred to the principal epidemic diseases, against numbers declining from 87 to 50 in the four preceding weeks. Of these 74 deaths, 26 resulted from measles, 21 from scarlet fever, 11 each from diphtheria and infantile diarrhœal diseases, and 5 from whooping-cough, but not one from enteric fever or from small-pox. The annual death-rate from these diseases was equal to 1·6, against 1·0 per 1000 in the large English towns. The deaths attributed to measles, which had declined from 31 to 16 in the four preceding weeks, rose to 26, of which 6 occurred in Greenock, 5 each in Coatbridge and Hamilton, 4 in Glasgow, and 3 in Edinburgh. The deaths referred to scarlet fever, which had been 20, 11, and 12 in the three preceding weeks, rose to 21, and included 7 each in Glasgow and Aberdeen and 4 in Edinburgh. The fatal cases of diphtheria, which had declined from 21 to 8 in the four preceding weeks, rose to 11, and comprised 4 in Glasgow, 2 each in Edinburgh, Paisley, and Kirkcaldy, and 1 in Leith. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 12, 8, and 11 in the three preceding weeks, were again 11 in the week under review, and included 6 in Glasgow and 2 in Aberdeen. The 5 deaths referred to whooping-cough were slightly in excess of the average in the earlier weeks of the quarter, but showed no excess in any particular town. In addition to the above deaths a fatal case of typhus was recorded in Dundee.

The deaths referred to diseases of the respiratory system, which had declined from 322 to 155 in the five preceding weeks, were again 155 in the week under notice, and were 55 below the number registered in the corresponding week of the previous year. The deaths from the several forms of violence numbered 32, against 38 and 28 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,212,380 persons at the middle of the year 1915, 383 births and 396 deaths were registered during the week ended Saturday, Dec. 25th, 1915. The annual rate of mortality in these towns, which had been 21·8, 20·0, and 22·2 per 1000 in the three preceding weeks, fell to 17·0 per 1000 in the week under notice. During the first 12 weeks of the fourth quarter of last year the mean annual death-rate in these towns averaged 18·2, against corresponding rates of 15·4 and 17·9 per 1000 in the English and Scotch towns respectively. The annual death-rate for the week mentioned was equal to 17·0 in Dublin (against 15·5 in London and 17·0 in Glasgow), 18·1 in Belfast, 17·7 in Cork, 20·2 in Londonderry, 19·0 in Limerick, and 20·9 in Waterford, while in the 21 smaller towns the mean death-rate did not exceed 13·5 per 1000.

The 396 deaths from all causes were 120 fewer than the number registered in the previous week, and included 38 which were referred to the principal epidemic diseases, against 37 and 46 in the two preceding weeks. Of these 38 deaths, 19 resulted from measles, 8 from infantile diarrhœal diseases, 4 from whooping-cough, 3 from scarlet fever, and 2 each from enteric fever and diphtheria, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·6, against corresponding rates of 1·0 and 1·1 per 1000 in the English and Scotch towns respectively. The deaths attributed to measles, which had been 15, 14, and 18 in the three preceding weeks, numbered 19 in the week under review, and comprised 12 in Dublin and 7 in Belfast. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 12, 9, and 10 in the three preceding weeks, fell to 8, of which 6 were registered in Dublin. The fatal cases of whooping-cough, which had been 11, 5, and 8 in the three preceding weeks, fell to 4, and included 3 in Belfast. The 3 deaths from scarlet fever were slightly below the average in the earlier weeks of the quarter and showed no excess in any town. The fatal cases of enteric fever were registered in Dublin and those of diphtheria in Dublin and Bangor.

The deaths referred to diseases of the respiratory system, which had been 144, 122, and 121 in the three preceding weeks, further fell to 94 in the week under notice. Of the 396 deaths from all causes, 109, or 28 per cent., occurred in public institutions, and 8 resulted from violence. The causes of 19, or 4·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the large English towns the proportion of uncertified causes did not exceed 1·0 per cent.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of last year, 502 births and 564 deaths were registered during the week ended Saturday, Jan. 1st. The annual rate of mortality in these towns, which had been 20·0, 22·2, and 17·0 per 1000 in the three preceding weeks, rose to 24·3 per 1000 in the week under notice. During the 13 weeks of the quarter just ended the mean annual death-rate in these towns averaged 18·7, against corresponding rates of 15·5 and 17·9 per 1000 in the English and Scotch towns respectively. In the week under review the annual death-rate was equal to 24·0 in Dublin (against 17·4 in London and 15·9 in Glasgow), 25·1 in Belfast, 32·0 in Cork, 13·9 in Londonderry, 16·2 in Limerick, and 22·8 in Waterford, while in the 21 smaller towns the mean death-rate was 24·1 per 1000.

The 564 deaths from all causes were 168 in excess of the number in the previous week, and included 60 which were referred to the principal epidemic diseases against 46 and 38 in the two preceding weeks. Of these 60 deaths, 22 resulted from measles, 12 from whooping-cough, 10 from scarlet fever, 9 from infantile diarrhœal diseases, 6 from diphtheria, and 1 from enteric fever, but not one from small-pox. The annual death-rate from these diseases was equal to 2·5, against corresponding rates of 1·0 and 1·6 per 1000 in the English and Scotch towns respectively. The deaths attributed to measles, which had been 14, 18, and 19 in the three preceding weeks, rose to 22, and comprised 9 each in Dublin and Belfast, and 4 in Cork. The deaths referred to whooping-cough, which had been 5, 8, and 4 in the three preceding weeks, rose to 12, of which 4 occurred in Limerick and 3 in Dublin. The fatal cases of scarlet fever, which had been 4, 7, and 3 in the three preceding weeks, rose to 10, and included 5 in Belfast and 3 in Cork. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 9, 10, and 8 in the three preceding weeks, were 9 in the week under review, and included 4 in Dublin and 2 in Belfast. The 6 deaths referred to diphtheria comprised 4 in Cork and 2 in Dublin, and were 3 in excess of the average in the earlier weeks of the quarter. The fatal case of enteric fever was registered in Belfast.

The deaths referred to diseases of the respiratory system, which had declined from 144 to 94 in the four preceding weeks, rose to 152 in the week under notice. Of the 564 deaths from all causes, 155, or 28 per cent., occurred in public institutions, and 20 resulted from violence. The causes of 27, or 4·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the large English towns the proportion of uncertified causes did not exceed 1·2 per cent.

PRESENTATION TO DR. T. J. WALKER.—Dr. Walker who, in August of last year, was presented with the freedom of the city of Peterborough, was on Dec. 22nd last the recipient of his portrait in oils painted by Mr. Fiddes Watt, A.R.S.A. The presentation, which took place in the Fitzwilliam Assembly Rooms, was made by Mr. G. C. W. Fitzwilliam, who said that Dr. Walker was admired for his professional abilities, was looked upon as one of the greatest citizens of Peterborough, and was loved as friend, companion, and neighbour. Accompanying the portrait was a book containing the names of 750 subscribers, and bearing on the title-page the following inscription: "On the completion of the eightieth year of his age, his friends and neighbours presented Dr. Thomas James Walker, Doctor of Medicine, Fellow of the Royal College of Surgeons, Justice of the Peace, Volunteer Decoration, his portrait painted by Fiddes Watt, A.R.S.A., as a token of their esteem and affection, Peterborough, December, 1915."

Correspondence.

"Audi alteram partem."

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

To the Editor of THE LANCET.

SIR,—The wind-up of the year brings back to my mind the events which occurred a year ago at the same period, when you gave me the opportunity to expose to you the sufferings of my countrymen, the crimes committed in Belgium, and the sad situation in which so many Belgian doctors and pharmacists were living.

Under the management of a medical committee, you immediately called upon the spirit of fellowship of the members of our corporation, and I enjoyed the moving consolation to find that your call was responded to from all quarters of the world.

On behalf of my colleagues in Belgium, although I have been unable for a good while to communicate with them, I grasp this opportunity to deeply express to you, to the chairman and gentlemen of the committee, my heartfelt thanks for the lasting effort made by all of you during the past year. The voices of all those you have so generously assisted in their sufferings, of whom you may have saved life, cannot yet reach you, the Germans are still there to prevent it. Later on, when we shall be free, when we shall be able to think again and to express openly our feelings, they will tell you themselves—better than I could—the greatness of your assistance.

I will only now beg you to accept the gratitude of the Belgian doctors and pharmacists—the gratefulness of their little children, which must bless you at the distance.

I am, Sir, yours faithfully,

London, W., Dec. 31st, 1915. C. JACOBS.

TREATMENT OF TRYPANOSOMIASIS.

To the Editor of THE LANCET.

SIR,—As is the case with so many protozoal infections of man, successful treatment entails keeping the disease under control and the infection reduced to a minimum for a prolonged period, probably at least two years. In trypanosomiasis derived from infection in West Africa, Uganda, Congo, &c., this can be attained by subcutaneous injections of atoxyl or its equivalents, aided, perhaps, by antimonial preparations for shorter periods. Rhodesian trypanosomiasis, however, does not yield to atoxyl or other arsenical preparations. It can be kept under control by antimonial preparations, but these as a rule can only be administered in sufficient doses to be effective by intravenous injections. The number of available veins is limited, and in any case continued intravenous injections are painful and partake of the nature of an operation. It is true that in one case we kept a patient in fair health by this method for three years, during which time 250 intravenous injections were given, but this is exceptional. Our object, therefore, has been, if possible, to find some form of antimony preparation that could be readily administered without causing tissue necrosis, abscess, or severe pain when injected subcutaneously; or gastric disturbance when given by the mouth. Administration by means of enemata has failed. For an occasional intravenous injection there is little difficulty. Tartar emetic, metallic antimony, antiluetin are all successful, and no trypanosomes will be found in the peripheral blood for 3–5 days after such administration. If these preparations are administered subcutaneously, whether given well diluted or in hypertonic saline solutions, or in the case of metallic antimony in Lambkin's medium, local severe pain usually persists for days, and sometimes tissue necrosis ensues.

In view of this, we consider that it is worth while calling the attention of those who have such cases to deal with to a preparation of antimony oxide, and to quote in this report one case in the hopes that a more extended trial will be given to this preparation and the results recorded:—

On admission, on Nov. 3rd, the patient, aged 20 (Rhodesia), was treated with atoxyl subcutaneously and antiluetin by the mouth. Trypanosomes were always easily found in peripheral blood and varied from one or two up to 20 to 200 leucocytes. Intravenous injections of tartar emetic were in addition used and for two or three days after such injections no trypanosomes were to be found, but on the third or fourth day they would again appear to the extent of 6–24 in 200 leucocytes. On Dec. 8th 30 minims of Martindale's injectio antimonii oxidi (equivalent to 1-20th grain tartar emetic) were given subcutaneously daily, and no trypanosomes were found till the 14th, and on that day 2 per 200 leucocytes were found, whilst on the 15th the number had increased to 3 per 200 leucocytes. On the 16th 30 minims of the injection of antimony oxide were given twice a day, and since then no trypanosomes have been found. These injections are painless, can be repeated, and cause no more trouble than, say, a morphia injection.

An extended use of this drug is well worth while, as present methods, even if they control the disease, are painful, and few will stand them for a prolonged period. In cases of Rhodesian trypanosomiasis hitherto treated by other methods the termination has always been disastrous. Possibly the preparation we have employed may give as satisfactory results as atoxyl does in other cases of trypanosomiasis, and it is in the hope that it may have an extended trial or that other preparations may be suggested that we have brought the matter forward.—We are, Sir, yours faithfully,

C. W. DANIELS, M.B. Cantab., F.R.C.P. Lond.
H. B. NEWHAM, M.R.C.P. Lond., D.P.H.

London School of Tropical Medicine, Royal Albert Dock, E., Dec. 28th, 1915.

THE SUPPLY OF MEDICAL MEN FOR THE ARMY.

To the Editor of THE LANCET.

SIR,—What is apparently meant to be a warning appears in your issue of Dec. 25th—namely, that the medical profession will only have itself to thank if the present scheme of volunteering fails and conscription has to follow. And yet I venture to suggest that were a plébiscite of the whole profession taken only a very small minority would be found to vote against complete mobilisation. The civil doctor differs from other volunteers in the fact that he is to all intents and purposes ready for duty, and does not require the months of training necessary for combatants.

There is no use blinking our eyes to the fact that the present scheme is manifestly unfair to many of us, say, for instance, as between a man of 42 and one of 46. The latter is not wanted, however fit he may be or however keen, but his slightly

junior neighbour is in a most difficult position. If mobilisation of the whole profession took place, and it was recognised that every man would have to do his share, either at home or abroad, all the apparent hardship would cease. A man of 50, if of reasonable health, is perfectly able to do duty in a military hospital or at a camp. But the civil doctor has a very definite duty to the public, and it ought to be possible for short periods of service, say three months, to be arranged, and let this period be the same for everybody.

I say, further, that if only as an example of what every decent-minded Britisher ought to be doing now—namely, to be wearing the King's uniform, then the sooner all of us are mobilised the better. Lest this should be vetoed on the ground of expense, then let pay be given only when on actual military service.

I am, Sir, yours faithfully,

STANLEY MELVILLE.

Devonshire-place, W., Dec. 27th, 1915.

To the Editor of THE LANCET.

SIR,—I have read with much interest and appreciation the leading article on the supply of medical men for the army in THE LANCET of Dec. 11th, 1915, but if you will permit me to express the opinion, this most urgent question has yet to be considered on broad and logical lines. Naturally the Army Medical Department has but one object in view—the securing of as many medical men as possible for the army. This attitude is quite understandable, and I am sure that the profession is of one mind as to the absolute necessity of the adequate treatment of the sick and wounded sailor and soldier, but the ranks of the profession are limited and cannot be elastically expanded as can those of a combatant army.

The great problem which awaits solution is therefore this, How can the just demands of both soldier and civilian be met by a limited and an already depleted profession? There is only one answer to this question—by organisation, and this organisation must be made to apply to both the civil and military aspects of the problem.

In your article you refer to the steps which are being taken to organise the civilian medical service. Equally and perhaps even more important is it that an earnest effort should be made to adjust the military medical service to the conditions of the hour, for there cannot be a doubt that the medical material which has recently flocked to the service of the War Office is not employed on strictly economical lines. By economy I mean economy in the skill and time of the medical men employed. And the true reason of this economic waste is to be found in the fact that the Army Medical Department is endeavouring to meet the medical and surgical needs of an army of over 3,000,000 men in war time on the same administrative lines as those of an army of some 250,000 men during the time of peace.

The sooner it is realised that with the limited medical supply at our disposal this cannot be done without serious injury to the civil population, the sooner will the solution of our difficulties appear in sight. In other words, far-reaching modifications of administrative methods are urgently needed.

If one aspect of the question is considered—i.e., the administration of our home military hospitals—it is at once evident that there is economic waste of professional skill and time in the employment of medical men (*a*) in posts the duties of which consist almost wholly of non-medical administrative work; (*b*) in clerical work, such as writing up the non-medical details of history, case-sheets, &c.; and (*c*) in the work entailed by the present cumbrous method of invaliding.

I have only alluded to one or two of the numerous aspects in which the ramifications of a peace-time administration tend to economic waste when it is sought rigidly to apply it to the wholly different conditions of a great war.

In conclusion allow me to assure you that only a compelling sense of what is due to both soldier and civilian has prompted this letter.

I am, Sir, yours faithfully,

Dec. 19th, 1915. PRO PATRIA.

A TRENCH FOOT-WARMER.

To the Editor of THE LANCET.

SIR,—For those most liable to trench-foot owing to a less robust heart and circulation there are three requisites (in addition to a dry skin under waterproof stockings or a layer of grease) for protection against the threatening condition and for its early treatment: (1) Surface heat for the wet boots and leggings to make them conduct warmth to the skin instead of conducting it away; (2) ventilating heat to dry them; and (3), if possible, some supply of restorative heat for the abdomen and spine.

For these purposes a simple apparatus has been devised which one man can use at a time. A larger model has been planned for simultaneous use by batches of six if desired. Its principle is a novel modification (to be referred to as "thermospiry" under its other hygienic, medical, surgical, and general applications) of that of the central heating system, with the difference that, to suit the trench limitations as regards fuel, the entire heat production from a small supply of it is utilised for the sufferer's benefit with hardly any loss. That principle provides for two warm-air circulations: (1) one for the heated air (within a closed system, as in the radiator); and (2) a general ventilating circulation for the hot air which has passed through the "heater" to rise from under the feet into the investing atmosphere confined under impervious clothing. For relative air tightness the following provisions are made: 1. After donning an oil-skin overcoat (provided at the nape with a wide outlet tube to discharge the slightly contaminated air away from the mouth and nostrils) the man steps into a tarpaulin bag and stands in it on two footplates (perforated to drain away any water and to concentrate the hot ventilation from the heater situated below the standing plate upon the wet boots and leggings). 2. He then draws up and straps the bag across the middle of the thighs—over the trousers and under all his coat skirts. These are then gathered over the bag by an outer strap above the knees. The investing air thus confined is kept in circulation in the first place by the ascending hot draught (an outer air supply tube passing in over the edge of the bag down to the heater); but that circulation is much activated by foot paddling, arm swinging, and shoulder shrugging. The "closed circuit" consists of two connected metallic air chambers (thin copper, tin, or aluminium). One is an outer skin surrounding the heater with its contained fuel. The other stands up between the foot-plates as a flat hollow shield to warm the calves. Between them is arranged an air-pumping box (or tambour) under a treadle worked by the right or the left toes in alternating spells, for the purpose of increasing the heat of the shield

according to the rate of the air revolutions through the heating chamber below.

A more complete description must be reserved for a further note after the scheme, if approved, has undergone any improvements recommended by the Royal Army Medical Department.

We are, Sir, yours faithfully,

WILLIAM EWART.
Upper Brook-street, W., Dec. 19th, 1915. CHARLES EWART.

RETENTION OF URINE IN THE ADULT, WITHOUT APPARENT CAUSE, AS A PATHOGNOMONIC SIGN OF TUBERCULOUS MENINGITIS.

To the Editor of THE LANCET.

SIR,—Dr. D. W. Keiller Moody's interesting article in your issue of to-day on retention of urine as a symptom of tuberculous meningitis recalls a paper by Dr. S. Vere Pearson, which appeared in the *Clinical Journal* in December, 1902, entitled "Tuberculous Meningitis in Adults Occurring as a Terminal Event in Chronic Pulmonary Tuberculosis." Though Dr. Pearson's paper deals primarily with tuberculous meningitis in connexion with pulmonary tuberculosis, his remarks also have reference to meningitis complicating tuberculous lesions other than pulmonary. He divides the cases into three classes: Those in which the signs of tuberculosis are: (1) Well recognised and advanced; (2) recognised but not advanced; and (3) indefinite or absent. Dr. Moody's article is chiefly concerned with the cases which fall under the third heading, which is the most important one from a diagnostic standpoint. For the onset of meningitis is a matter of grave concern when it occurs in a patient who is enjoying good or even moderate health, whereas its appearance in a patient with advanced pulmonary tuberculosis merely hastens the end. He gives notes of four adult patients, who subsequently developed tuberculous meningitis, in whom there was retention of urine without apparent cause, and he has come to look upon it as a pathognomonic sign of tuberculous meningitis in adults.

Dr. Pearson came to the same conclusion, for he writes:—

> Retention of urine occurring in a patient with chronic pulmonary tuberculosis, whether the disease is advanced or only slight, should always suggest tuberculous meningitis where no local cause for the retention can be found, for it is often one of the earliest symptoms of the disease.

Both authors also state that the importance of the symptom resides in the fact that the ordinary evidences of meningitis are usually absent in the tuberculous meningitis of adults, at all events in the early stages of the disease. Thus two observers, working independently, have described an association which should prove of much value in diagnosis; and the publication of Dr. Moody's article will lead to a greater confidence in accepting its significance.

I am, Sir, yours faithfully,

H. E. SYMES-THOMPSON.
Cavendish-square, W., Jan. 1st, 1916.

*** In another column the sad news is announced of the death of Surgeon D. W. K. Moody on H.M.S. *Natal*.—ED. L.

ILLUMINATION IN OPERATIONS.

To the Editor of THE LANCET.

SIR,—In his letter on this subject in THE LANCET of Dec. 4th, 1915, Mr. J. L. Aymard points out the advantage of a concentrated light in a partially darkened room as contrasted with a diffused light which is only partially concentrated. I think most surgeons will agree that a properly concentrated light is the ideal one for operating theatres, but there has hitherto been some difficulty in obtaining a suitable light. The fault to be found with the illumination in most operating theatres at present is that the light is either not sufficiently concentrated upon the operating field, or else that it is too easily obstructed by the surgeon and his assistants. The disadvantages of a powerful light just over the operating table (the most usual form of lighting) are that the heat from such lights is exceedingly uncomfortable to the surgeon, and that dust may easily be shaken off the pendant into the wound. The use of a powerful arc light fixed outside the theatre, the rays from which are reflected by mirrors, to some extent solves this difficulty, but has the serious objection of being very complicated and easily put out of order.

I believe by far the most suitable light is that of the type which we have installed at St. Mark's Hospital. It consists of three motor-boat headlights of 50 candle power each, fitted in the ceiling, two of them being in the corners of the ceiling at one end of the room and one half-way between the two corners of the ceiling at the other end of the room. The beams from all three are made to converge on to a circle about 1½ feet in diameter at the operating table. The lamps are fixed and the table is moved to get the light in the correct position. The light is intense, resembling brilliant sunlight, and is cold and without shadows. As the rays come down from the ceiling at an angle of about 45° the surgeon and his assistants can move about freely without obstructing the light. The rest of the room is in semi-darkness. This is an ideal arrangement, giving an intense light where it is wanted without worrying the eyes, since only the operating field is illuminated. The lamps are air-tight, and the reflectors only require cleaning once a year, while the lamps require no attention. The light is controlled by ordinary switches. The installation is quite simple, all that is required being three good motor headlights which give a parallel beam of light, and a transformer to cut down the current to 6 volts. The latter is necessary on account of the extremely small filaments required to enable the whole of the light to be brought within the focus of the reflectors. The whole system only cost about £20. It has now been in use at St. Mark's Hospital for 18 months, and has proved an entire success.

I am, Sir, yours faithfully,

Jan. 1st, 1916. J. P. LOCKHART-MUMMERY.

THE DEMAND FOR LOCUM-TENENTS.

To the Editor of THE LANCET.

SIR,—May I through your columns appeal to practitioners requiring a locum-tenent during their absence at the front or otherwise not to be misled by representations that owing to the scarcity of men they will have to pay 9 or 10 guineas a week to secure a deputy. As a matter of fact, owing to the generous way in which retired and elderly practitioners have come forward, to a certain number being available on return from the front, and to others ineligible for military service, the supply of locum tenents is at present in excess of the demand, and trustworthy men can be had at 7 guineas a week. Those requiring help should refuse to pay the excessive fees in some cases demanded, especially by men who ought to be doing their duty with the army.—I am, Sir, yours faithfully,

PERCIVAL TURNER.
Adam-street, Adelphi, London, W.C., Jan. 3rd, 1916.

Obituary.

GEORGE OLIVER, M.D. LOND., F.R.C.P. LOND.

WE regret to announce the death of Dr. George Oliver, which occurred at his residence at Farnham, Surrey, on Dec. 27th, 1915. He was born in April, 1841, being the second son of Mr. W. Oliver, a surgeon, of Middleton-in-Teesdale, Durham. He was educated at Gainford School, and having decided to adopt his father's profession he proceeded to University College, where he had a brilliant academic career which culminated in his taking the gold medal at the M.D. examination of the University of London in 1873. Even in these early days he gave evidence of a truly scientific conception of his work, and he always had a deep admiration for William Sharpey, who was professor of physiology at University College in those days. Subsequent to this he started practice at Redcar; he only stayed there a few years, and in 1875 went to Harrogate, where he speedily developed a large practice, first as a general physician and subsequently as a consultant. He spent altogether 33 years at Harrogate, and was recognised as the highest authority there in the special branch of practice associated with that town. During the later portion of this period he used to reside in London or in Sidmouth during the winter, only living at Harrogate for the season; in 1901, however, he acquired a beautiful home in Surrey, where he spent the winter months, and it was not until 1908 that he entirely relinquished his Harrogate work. This freedom from the claims of a busy practice during a long period of each year enabled him to prosecute original research, which he loved; some of this was carried out at the Physiological Laboratory, University College, but a good deal in his private laboratory. He was always clever at any mechanical device, and most ingenious and resourceful in overcoming difficulties.

He wrote extensively not only on the Harrogate waters, but also on urine testing; the fourth edition of his "Bed-side Urine Testing" was published in 1889, and his originality here was shown by the invention of testing papers known as "Oliver's test papers." But it was always the blood and its circulation that most attracted his attention, and one instrument after another dealing with this branch of science were brought under the notice of the medical world; his hæmacytometer, hæmoglobinometer, arteriometer, and sphygmometer are instances. He will be especially remembered for his work in connexion with blood pressure; he it was among British physicians who chiefly insisted on the importance of estimating blood pressure in diagnosis, and the instruments of precision he introduced for this purpose will live long to keep his memory green. His book on "Studies on Blood Pressure" rapidly passed through two editions, and at the time of his death he was nearing the completion of a third edition, in which the book was practically rewritten. It is to be hoped that this work may ultimately be published.

Another branch of medical science to which he devoted himself was that relating to the ductless glands, and he published papers on the suprarenal, thyroid, thymus, and pituitary bodies. In this direction he was perhaps best known by the remarkable paper, published in conjunction with Professor Sir Edward Schäfer on the suprarenal gland. This really formed the foundation for all the enormous amount of subsequent work on the adrenal body which has resulted not only in the discovery of the functions of this formerly mysterious organ, but also in the discovery of the active principle adrenaline, one of the greatest boons to suffering humanity. Although Addison many years ago had dimly conjectured the use of the suprarenal capsule, it was not until Oliver and Schäfer published their famous paper that any clear light was thrown upon the subject; and Dr. Oliver at once grasped the practical application of the discovery.

In 1887 Dr. Oliver was elected a Fellow of the Royal College of Physicians of London, and a few years later he founded there, in memory of his old master Sharpey, the lectureship which now bears the name of the Oliver-Sharpey lectureship. Dr. Oliver was most suitably chosen as the first lecturer under this trust, when he took as his subject "Studies on Tissue Lymph" (1904). He had previously filled the position of Croonian lecturer at the same College (1896), which gave him the opportunity of bringing prominently before the profession the importance of a study of blood pressure. This does not by any means exhaust the list of his writings, for he contributed largely to the journals and also to standard works, such as "Quain's Dictionary of Medicine," in which he wrote articles on constipation and on other ailments of the bowels. He was thus a man with wide attainments. His recreations included photography, in which he became an expert, and until the last few years he took his exercise mostly in the form of cycling. He was never a man of strong physique, but in spite of this he continued to live an active and strenuous life. About five years ago he had an attack of hæmatemesis, from which he fortunately quickly recovered. For about a month before he died he suffered from some bronchial catarrh, and the coughing so occasioned evidently strained the weak spot in his gastric lining. On Christmas night he was again seized with bleeding, which no remedy could check, and two days later he peacefully passed away.

His great aim throughout life was to make medicine a more exact science than he found it, and none can deny that he succeeded in this great endeavour. The keynote of his success, both at the bedside and in the laboratory, was untiring perseverance; he was never satisfied with anything that was imperfect, but went steadily on, altering and improving his inventions until they gave absolutely correct results. It was the same with his writings; he wrote and rewrote each sentence until it was absolutely clear so as to express his meaning in the fewest possible words. He never hesitated to change his views when necessary, and much of what he wrote in his earlier editions was consequently amended as his apparatus were perfected and gave him results which corrected those obtained earlier with less perfect instruments. He was a man of a singularly sweet, genial, and unselfish disposition, which endeared him alike to his patients and his friends. He will be greatly missed not only in the scientific world but also by the large circle of his personal friends in Yorkshire, London, and Surrey.

During the time he was at Redcar he married Alice, the only daughter of Mr. J. Hunt, of Barnard Castle, by whom he had one son and one daughter who survive him. His first wife died in 1898. In 1900 he married again, Mary, daughter of Mr. W. Ledgard, of Roundhay, Leeds, and she survives him Dr. Oliver was buried in the churchyard of the peaceful little church at Tilford on Dec. 31st, the church which he used faithfully to attend.

The War.

THE CASUALTY LIST.

THE following names of medical men appear among the casualties announced since our last issue:—

Killed.

Major F. M. Johnson, 6th Field Ambulance, Australian A.M.C., obtained his M.D. at Edinburgh in 1888, and prior to the war was in practice at Melbourne, Australia.

Captain A. G. Miller, attached to the 12th Middlesex Regiment, was in England, from Melbourne, when war broke out, and joined the R.A.M.C.

Captain A. B. Thompson, R.A.M.C., 3rd East Lancs. Field Ambulance (T.F.)., graduated M.B., B.Ch. Oxford, 1914, and was a student at the London Hospital.

Lost in the Explosion on H.M.S. "Natal."

Staff-Surgeon Alfred O. Hooper, R.N., graduated M.B., Ch.B. in 1903 at Edinburgh University, and was at one time assistant surgeon at the Leicester Infirmary.

Surgeon D. W. Keiller Moody, R.N., graduated M.B., C.M. in 1900 at Aberdeen University, and held appointments at Peterborough Infirmary, the Central London Infirmary, and Addenbrooke's Hospital, Cambridge, and was a surgeon at Haslar Naval Hospital before joining the Grand Fleet.

Died of Wounds.

Lieutenant W. F. Thompson, R.A.M.C., was educated at St. Bartholomew's Hospital, and obtained the M.R.C.S., L.R.C.P. Lond. in 1912.

Lieutenant M. B. Patel, I.M.S., attached to the 7th Rajputs, obtained the L.R.C.P., L.R.C.S. Edin. in 1908.

Wounded.

Lieutenant R. C. McMillan, R.A.M.C., attached to the 14th Welsh Regiment.

Captain J. E. Brydon, R.A.M.C. (T.F.), attached to the R.F.A., Northumbrian Division, Ammunition Column (T.F.).

Captain T. W. Wylie, R.A.M.C.

Lieutenant A. Wylie, R.A.M.C., attached to the Royal Garrison Artillery.

THE HONOURS LIST.

The following promotions and appointments of medical men in recognition of their services in connexion with the operations of the Army and Navy are announced:—

To be C.B., Military Division, additional member:

Fleet-Surgeon A. Gaskell, R.N.

To be C.B., Civil Division, additional members:

Surgeon-General W. H. Norman, R.N.

Temporary Surgeon-General H. D. Rolleston, R.N.

To be K.C.M.G., additional members:

Surgeon-General Sir J. Porter, R.N., LL.D., K.C.B.

Temporary Surgeon-General Sir W. W. Cheyne, Bart., R.N., C.B.

To be K.C.V.O.:

Surgeon-General Sir A. A. Bowlby, K.C.M.G.

To be M.V.O. (4th Class):

Staff-Surgeon R. J Willan, R.N.V.R.

The *Military Cross*, for "gallantry and devotion to duty in the field," has been conferred upon—

Temporary Captain Henry James Burke, R.A.M.C. (attached to the 1st/8th Battalion West Yorks Regiment (T.F.)).

For conspicuous gallantry on Nov. 8th, 1915, near Turco Farm. A sergeant in the front line had his leg crushed by the blowing in of a dug-out, and Captain Burke found immediate amputation necessary. In order to save time he crawled across the open to get his instruments, while the enemy turned a machine gun on to him. In spite of their fire he returned the same way and coolly performed the operation in the trench while the enemy were shelling it heavily.

Temporary Captain Bartholomew James Hackett, R.A.M.C. (attached to the 7th Battalion Suffolk Regiment).

For conspicuous gallantry and devotion to duty at Loos on Oct. 2nd, 1915. When the battalion to which he was attached had suffered very heavy casualties and had run out of dressings, Captain Hackett brought up a fresh supply from the dressing station, crossing over about 1000 yards in the open. He has frequently attended the wounded under fire, and has shown great bravery.

MENTIONED IN DESPATCHES.

The following officers connected with the medical profession, and occupying the indicated positions with our armies, are recommended in Sir John French's despatch dated Nov. 30th, 1915, and issued from the War Office Jan. 1st, 1916, "for gallant and distinguished service in the field." It is a matter for deep regret that some of them are no longer with us.

Staff: General Headquarters Staff, &c.

Atkins, Temp. Col. J., A.M.S.
Pike, Col. W. W., D.S.O.
Fawcus, Lt.-Col. H. B., C.M.G., R.A.M.C.
Davidson, Maj. P., D.S.O., R.A.M.C.
Cunningham, Capt. F. W. M., R.A.M.C.

Royal Field Artillery (T.F.).

Peck, Surg.-Maj. E. G., W. Riding Brig.

ARMY MEDICAL SERVICE.

General Headquarters Staff, &c.

Macpherson, Surg.-Gen. W. G., C.B., C.M.G.
O'Donnell, Surg.-Gen. T. J., D.S.O.
O'Keefe, Surg.-Gen. M. W., C.B.
Porter, Surg.-Gen. R.
Treberne, Surg.-Gen. F. H., C.M.G.
Woodhouse, Surg.-Gen. T. P., C.B.
Barefoot, Col. G. H., C.M.G.
Beevor, Col. (temp.) W. C., C.M.G. (T.F.).
Browne, Col. E. G.
Burtchaell, Col. C. H., C.M.G.
Cree, Col. G., C.M.G.
Firth, Col. R. H.
Holt, Col. M. P. C., C.B., D.S.O.
Hunter, Col. G. D., D.S.O.
Kirkpatrick, Col. R., C.M.G.
MacDonald, Col. S.
MacLeod, Col. R. L. R.
Nichol, Col. C. E., D.S.O.
O'Callaghan, Col. D. M.
Rawnsley, Col. G. T.
Russell, Col. J. J.
Scott, Col. B. H.
Skinner, Col. B. M., M.V.O.
Starr, Col. W. H.
Thurston, Col. H. C., C.M.G.
Tyacke, Lt.-Col. (temp. Col.) N., R.A.M.C.
Whaite, Col. T. du B.
Young, Col. C. A.
Birrell, Lt.-Col. E. T. F., C.M.G., R.A.M.C.
Brakenridge, Lt.-Col. F. J., R.A.M.C.
Chopping, Lt.-Col. A., R.A.M.C.
Cummins, Lt.-Col. S. L., C.M.G., R.A.M.C.
Douglas, Lt.-Col. H. E. M., V.C., D.S.O., R.A.M.C.
Lloyd, Lt.-Col. L. N., D.S.O., R.A.M.C.
Morgan, Lt.-Col. C. K., R.A.M.C.
Penny, Lt.-Col. F. S., R.A.M.C.
Roch, Lt.-Col. H. S., R.A.M.C.
Sloan, Lt.-Col. J. M., D.S.O., R.A.M.C.
Browne, Maj. C. G., D.S.O., R.A.M.C.
Burke, Maj. B. B., R.A.M.C.
Conway, Maj. J. M. H., R.A.M.C.
Davidson, Maj. P., D.S.O., R.A.M.C.
Easton, Maj. P. G., R.A.M.C.
Fleming, Maj. C. C., D.S.O. (Res. of Off.).
Hartigan, Maj. J. A., R.A.M.C.
Harty, Maj. T. E., R.A.M.C.
Henderson, Maj. P. H., R.A.M.C.
Hildreth, Maj. H. C., R.A.M.C.
Richmond, Maj. J. D., R.A.M.C.
Ritchie, Maj. M. B. H., R.A.M.C.
Smallman, Maj. A. B., R.A.M.C.
Woodley, Maj. R. N., R.A.M.C.
Beckton, Capt. J. J. H., R.A.M.C.
Gale, Capt. R., D.S.O., R.A.M.C.
Howell, Capt. F. D. G., R.A.M.C.
MacArthur, Capt. W. P., R.A.M.C.
Scott, Capt. J. W. L., R.A.M.C.

Consultants.

Dawson, Col. (temp.) Sir B. E., K.C.V.O. (Capt., Lond. Gen. Hosp., R.A.M.C. (T.F.)).
Gray, Col. (temp.) H. McI. W. (Maj., Scottish Gen. Hosp., R.A.M.C. (T.F.)).
Lister, Col. (temp.) W. T.
Thomson, Col. (temp.) H. A. (Capt., Scottish Gen. Hosp., R.A.M.C. (T.F.)).
Wallace, Col. (temp.) C. S.

Royal Army Medical Corps.

Addams-Williams, Lt.-Col. L.
Brogden, Lt.-Col. J. E.
Clarke, Lt.-Col. T. H. M., C.M.G., D.S.O.
Clements, Lt.-Col. R. W.
Crawford, Lt.-Col. V. J., D.S.O.
English, Lt.-Col. (temp.) T. C. (Capt., Lond. Gen. Hosp., R.A.M.C. (T.F.)).
Goddard, Lt.-Col. G. H.
Hinge, Lt.-Col. (temp. Col.) H. A.
Hooper, Lt.-Col. A. W., O.B.O.
Hudleston, Lt.-Col. W. E.
Inkson, Lt.-Col. E. T., V.C.
Kiddle, Lt.-Col. F.
Langstaff, Lt.-Col. J. W.
Leake, Lt.-Col. J. W.
McMunn, Lt.-Col. J. R.
Mainprise, Lt.-Col. C. W.
Marriott, Lt.-Col. E. W. P. V.
Martin, Lt.-Col. H. G.
Moore, Lt.-Col. G. A.
Nickerson, Lt.-Col. W. H. S., V.C.
Norman, Lt.-Col. H. H.
Rattray, Lt.-Col. M. MacG.
Silver, Lt.-Col. J. P.
Smith, Lt.-Col. and Bt. Col. F., D.S.O.
Watson, Lt.-Col. A. A. (S.R.) (Lt.-Col., R.A.M.C. (T.F.)).
Wroughton, Lt.-Col. A. O. B.
Ainsworth, Maj. R. B.
Anthonisz, Maj. E. G.
Black, Maj. R. B. (Res. of Off.).
Brown, Maj. G. H. J.
Campbell, Maj. J. H.
Doig, Maj. K. A. C.
Fitzgerald, Maj. FitzG. G.
Gibson, Maj. A. W.
Gowlland, Maj. (temp.) E. L.
Hanafin, Maj. P. J.
Harding, Maj. D. L.
Harding, Maj. H.
Irvine, Maj. A. E. S.
L'Estrange, Maj. E. F. Q.
Lewis, Maj. R. P.
Lewis, Maj. S. E.
Low, Maj. N.
McEntire, Maj. J. T.
Meaden, Maj. A. A.
Meadows, Maj. S. M. W.
Mitchell, Maj. A. H. McN.
Pascoe, Maj. J. S.
Purser, Maj. L. M.
Rahilly, Maj. J. M. B.
Riach, Maj. W.
Ritchie, Maj. T. F.
Roberts, Maj. F. E.
Ryan, Maj. E.
Sampson, Maj. F. C.
Shea, Maj. H. F.
Sinclair, Maj. M.
Smyth, Maj. R. S.
Stewart, Maj. H.
Storrs, Maj. R.
Thompson, Maj. R. J. C.
Turnbull, Maj. J. A.
Turner, Maj. C. H.
Waters, Maj. W. J.
West, Maj. J. W.
White, Maj. R. K.
Wiley, Maj. W.
Adams, Capt. J. (S.R.).
Allan, Capt. J. E. (S.R.).
Andrews, Capt. (temp.) J. A.
Atkins, Capt. R. R. G. (S.R.).
Baird, Capt. J. H. (S.R.).
Ballingall, Capt. D. C. G.
Barry, Capt. (temp.) J. H.
Bazett, Capt. H. C. (S.R.).
Beaman, Capt. W. K.
Bearn, Capt. F. A. (S.R.).
Beddows, Capt. E. C.
Bell, Capt. (temp.) D.
Bell, Capt. W. J. E. (D.S.O.).
Black, Capt. J. E. (S.R.).
Bourdillon, Capt. (temp.) L. G.
Boyd, Capt. J. E. M.
Bridges, Capt. A. B. H.
Bullock, Capt. (temp.) A. E. (killed).
Campbell, Capt. W. K. (S.R.).
Carrington, Capt. (temp.) E. W. (killed).
Charles, Capt. (temp.) R.
Compton, Capt. A. G. W. (S.R.).
Cree, Capt. (temp.) R. E.
Dale, Capt. A. R. (S.R.).
Danks, Capt. (temp.) W. S.
Deane, Capt. E. C. (killed).
De La Cour, Capt. G.
Dew, Capt. (temp.) J. W.
Dickson, Capt. R. M.
Dill, Capt. M. G.
Donaldson, Capt. (temp.) M.
Dockrill, Capt. J. S. (S.R.).
Dowse, Capt. J. C. A. (S.R.).
Elliott, Capt. A. C.
Elliot, Capt. E. J.
Elvery, Capt. P. G. M.
Chiles-Evans, Capt. D. B. (S.R.) (Capt., Welsh F. Amb., R.A.M.C. (T.F.)).
Ewing, Capt. A. J. (S.R.).
Ferguson, Capt. (temp.) G. D.
Ferguson, Capt. (temp.) P.
Flood, Capt. F. G. (S.R.).
Foot, Capt. (temp.) W.
Forgan, Capt. R. (S.R.).
Fotheringham, Capt. W. (S.R.).
Friedlander, Capt. H. R. (S.R.).
Gaunt, Capt. J. K.
Gilchrist, Capt. A. J. (S.R.).
Gillespie, Capt. (temp.) J. M.
Gompertz, Capt. (temp.) R. H. C.
Graham, Capt. T. O. (S.R.).
Grant, Capt. (temp.) G. L. (killed).
Gray, Capt. J. W. (S.R.).
Greenlees, Capt. (temp.) J. R. C., D.S.O.
Griffin, Capt. (temp.) E. H.
Grogan, Capt. J. B.
Goldsmith, Capt. B. (S.R.).
Gurney-Dixon, Capt. (temp.) S.
Hairsine, Capt. O. (S.R.).
Hamilton, Capt. (temp.) C. S. P., D.S.O.
Hampson, Capt. T. (Res. of Off.).
Hampton, Capt. (temp.) F. A.
Harbison, Capt. H. A. (S.R.).
Harkness, Capt. J. W. P. (S.R.).
Hemphill, Capt. R.
Heslop, Capt. A. H.
Houston, Capt. J. W.
Hughes, Capt. B. (W. Rid. F. A. R.A.M.C. (T.F.)).
Jardine, Capt. (temp.) E. B.
Jebb, Capt. A. C. (S.R.).
Jones, Capt. (temp.) H. J. R.
Jones, Capt. K. W., D.S.O. (S.R.). (Capt., E. Lan. F.A., R.A.M.C. (T.F.)).
Kelsey-Fry, Capt. (temp.) W.
Kennon, Capt. (temp.) R.
Kerr, Capt. F. R., D.S.O. (S.R.).
King, Capt. D. R. (S.R.).
Knowles, Capt. (temp.) H. R.
Laird, Capt. (temp.) D. A.
Large, Capt. S. D.
Lawder, Capt. (temp.) T. A.
Lothian, Capt. N. V.
Mackenzie, Capt. (temp.) E. F. W.
McCarthy, Capt. W. H. L. (S.R.).
McCullagh, Capt. W. McK. H. (S.R.).
McCormack, Capt. C. McN. (S.R.).
McCurdie, Capt. J. R. (S.R.).
McDonald, Capt. (temp.) S. F.
Mackie, Capt. D. (S.R.).
McLaggan, Capt. (temp.) J. M.
MacLean, Capt. (temp.) I. C.
MacLeod, Capt. (temp.) J. A.
McLeod, Capt. (temp.) J. W.
McNee, Capt. J. W. (S.R.).
McNicol, Capt. (temp.) J. H.
McQueen, Capt. C.
McVicker, Capt. (temp.) D.
Magner, Capt. J. J. (S.R.).
Marr, Capt. D. M. (S.R.).
Martin, Capt. (temp.) E. K.
Menzies, Capt. A. J. A., D.S.O.
Millar, Capt. (temp.) G.
Miller, Capt. S. (S.R.).
Miller, Capt. T. MacK. (S.R.)
Mitchell, Capt. J. P. (S.R.).
Mitchell, Capt. T. J.
Monteith, Capt. H. G., D.S.O.
Mullaly, Capt. G. T. (S.R.).
Mumford, Capt. (temp.) W. G.
Nash-Wortham, Capt. (temp.) F. L.
Negligan, Capt. (temp.) G. E.
Newman, Capt. R. E. U.
Nicol, Capt. C. M.
O'Connor, Capt. A. P.
O'Driscoll, Capt. J. A. (S.R.).
O'Keeffe, Capt. J. J.
O'Neill, Capt. E. M.
O'Reilly, Capt. (temp.) C. J. R. P.
O'Reilly, Capt. (temp.) C. J.
O'Riordan, Capt. W. H.
O'Sullivan, Captain K. L. (S.R.).
Ozanne, Capt. R. C. (S.R.).
Parker, Capt. (temp.) T. E.
Parkinson, Capt. G. S.
Parnis, Capt. (temp.) H. W.
Perry, Capt. H. M. J.
Petit, Capt. G.
Peto, Capt. (temp.) M.
Phillips, Capt. E.
Purchase, Capt. (temp.) W. B.
Quinlan, Capt. W. T. (S.R.).
Ramsbottom, Capt. A. (S.R.) (Capt., Lanc. Field Amb., R.A.M.C. (T.F.)).
Rankine, Capt. (temp.) G.
Rhodes, Capt. (temp.) E. L. N.
Richards, Capt. (temp.) O., D.S.O.
Roberts, Capt. (temp.) J. E. H.
Roberts, Capt. (temp.) R. E.
Robertson, Capt. (temp.) R. C.
Robinson, Capt. E. (S.R.)
Ronn, Capt. (temp.) H. A.
Russell, Capt. A. W. (S.R.).
Russell, Capt. E. U.
Russell, Capt. (temp.) W. A.
Sampson, Capt. P., D.S.O.
Sherlock, Capt. H. B. (S.R.).
Smales, Capt. W. C.
Smith, Capt. H. (S.R.).
Smith, Capt. (temp.) J. F.
Smith, Capt. (temp.) P.
Smith, Capt. S. H.
Somerville, Capt. (temp.) T. V.
Sparks, Capt. C. W. (S.R.).
Spence, Capt. (temp.) D. B.
Stephen, Capt. (temp.) D. J. S.
Stevenson, Capt. G. H. (S.R.).
Stewart, Capt. (temp.) J. S.
Stiell, Capt. (temp.) G.
Sutton, Capt. E. A.
Tate, Capt. R. G. H.
Taylor, Capt. M. R. (S.R.).
Thornton, Capt. (temp.) F. R.
Tobias, Capt. W. O. (S.R.).
Turner, Capt. F. T.
Tyrrell, Capt. W. (Res. of Off.).
Walker, Capt. T. (S.R.).
Walker, Capt. (temp.) S. L.
Wallace, Capt. Q. V. B. (S.R.).
Walshe, Capt. S. J. A. H., D.S.O. (S.R.).
Ward, Capt. H. K. (S.R.).
Ward, Capt. J. H. (S.R.).
Wells, Capt. A. G.
Weston, Capt. (temp.) A. W.
Williamson, Capt. M. J.
Wilson, Capt. (temp.) I. S.
Wolf, Capt. (temp.) C. G. L.
Worthington, Capt. F.
Wright, Capt. A. R.
Wylie, Capt. T. W. (S.R.).
Young, Capt. (temp.) R. F.
Alexander, Lt. (temp.) D. C.
Barnes, Lt. (temp.) J. E.
Bernays, Lt. (temp.) C. M.
Boag, Lt. (temp.) J. H.
Boldero, Lt. (temp.) H. E. A.
Boyd, Lt. (temp.) C. A.
Brown, A. E. (late temp. Lt.).
Browne, Lt. (temp.) B. S.
Cagney, P. (late temp. Lt.).
Caton-Shelmerdine, Lt. (temp.) J.
Costobadie, H. P. (late temp. Lt.).
David, Lt. (temp.) W. E.
Douglas, Lt. (temp.) C. G.
Dunbar, Lt. (temp.) J.
Dunn, Lt. (temp.) J. C.
Dunne, B. V. (late temp. Lt.).
Driberg, Lt. (temp.) J. D.
Fothergill, Lt. (temp.) R. H.
Godding, Lt. (temp.) H. C.
Harley-Mason, R.J. (late temp. Lt.).
Hughes, Lt. (temp.) R. A.
James, P. W. (late temp. Lt.).
Kenny, Lt. (temp.) C. A.
Kirkland, Lt. (temp.) J. T.
MacKenzie, Lt. (temp.) M.
Maginness, Lt. (temp.) O. G.
McGillycuddy, Lt. (temp.) R. H.
Meagher, Lt. (temp.), T.
Menzies, Lt. (temp.) (Lt., Canadian A.M.C.) A. F.
Roberts, Lt. (temp.) C. S. L.
Roche, Lt. (temp.) A. R.
Rowell, Lt. (temp.) H. A.
Saunders, Lt. (temp.) L. D.
Smallhorn, Lt. (temp.) C. A.
Smith, A. C. T. (late temp. Lt.).
Steven, Lt. (temp.) J. F.
Stewart, Lt. (temp.) J. K.
Strain, Lt. (temp.) T.
Tribe, Lt. (temp.) R. H.
Walker, Lt. (temp.) H. B.
Watson, Lt. (temp.) D. G. (died of wounds).
Watson, Lt. (temp.) W. N.
Whigham, Lt. (temp.) J. R. M.
Whitton, Lt. (temp.) N. S.
Williams, Lt. (temp.) G. S. (Lt.-Capt. A.M.C.).
Wood, J. B. (late temp. Lt.).
Wright, Lt. (temp.) A. F.

Royal Army Medical Corps (T.F.).

Rutherford, Col. J. V. W.
Wight, Col. E. O.
Blandford, Lt.-Col. L. J.
Dewar, Lt.-Col. T. F.
Martin, Maj. C. J.
Whalley, Maj. F., W. Riding Field Amb.
Barling, Lt.-Col. S. G., S. Midland Field Amb.
Benson, Lt.-Col. (temp.) W. A., Northumb. Field Amb.
Clayton, Lt.-Col. W. K., Yorks Mtd. Brig. Field Amb.
Collinson, Lt.-Col. (temp.) H., W. Riding Field Amb.
Demetriadi, Lt.-Col. (temp.) L. P., W. Riding Casualty Clearing Stn.
Hawthorn, Lt.-Col. F., Northumb. Field Amb.
Howkins, Lt.-Col. C. H., S. Midland Field Amb.
Lloyd-Williams, Lt.-Col. (temp.) E., Lond. Field Amb.
Mackenzie, Maj. (temp.) (temp. Lt.-Col.) H. G. G., Home Counties Field Amb.
Milne-Thomson, Lt.-Col. A., Wessex Field Amb.
O'Connor, Lt.-Col. W. M., Lond. Field Amb.
Pickard, Lt.-Col. R., Wessex Field Amb.
Ranson, Lt.-Col. W., Northumb. Field Amb. (Capt., R.A.M.C. (S.R.)).
Sharp, Lt.-Col. A. D., W. Riding Field Amb.
Soltau, Lt.-Col. A. B., Wessex Field Amb.
Ward, Maj. (temp. Lt.-Col.) J., Home Counties Field Amb.
Watson, Capt. (T.F. Res.) C. G. (temp. Hon. Lt.-Col., R.A.M.C.).
Young, Lt.-Col. J., S. Midland Field Amb.
Armstrong, Maj. W. B.
Bird, Maj. (temp.) J. W., D.S.O., Lond. Field Amb.
Brown, Maj. J. P.
Burkitt, Maj. (temp.) J. C. S., N. Midland Field Amb.
de Legh, Maj. H. L.
Don, Maj. A., Highland Casualty Clearing Station.
Ducat, Maj. A. D.
Frankau, Capt. (temp. Maj.) C. H. S., Lond. Casualty Clearing Stn.
Hammerton, Maj. G. H. L., Yorks Mtd. Brig. Field Amb.
Kay, Maj. T.
Kidd, Maj. A. E., Highland Field Amb.
Mackay, Maj. W. B.
Montgomery-Smith, Maj. E. C., Lond. Field Amb.
Peyton, Maj. (temp.) T. H., Home Counties Field Amb.
Puddicombe, Maj. T. P., Wessex Field Amb.
Roe, Maj. W. F.
Rogers, Maj. J. S. Y.
Syroat, Capt. (temp. Maj.) H. B., W. Riding Field Amb.
Stoddart, Surg.-Maj. A. R., W. Yorks R. (T.F.)
Stocker, Surg.-Maj. E. G., Wessex Divl. Engrs., R.E. (T.F.)
Anderson, Capt. J. W.
Barton, Capt. M. H.
Bates, Capt. H. T., W. Riding Casualty Clearing Hosp.
Barton, Capt. M. H.
Bennett, Capt. F. G., N. Midland Field Amb.
Bowie, Capt. J. M.
Branthwaite, Surg.-Capt. R. W. (T.F. Res.).
Carnwath, Capt. T.
Carson, Capt. F. S., Lond. Sanitary Co.
Chavasse, Capt. N. G.
Clark, Capt. S., Lond. Field Amb.
Cooper, Capt. E. A., Lond. Sanitary Co.
Coplans, Capt. M., Lond. Field Amb.
Craven, Capt. (temp.) J. W., Northumb. Field Amb.
Crowley, Capt. T. W., Northumb. Field Amb.
Dale, Capt. J.
Daukes, Capt. S. H., Lond. Sanitary Co.
Dixon, Capt. H. B. F., Lond. Field Amb.
Downie, Capt. J., Yorks, Mtd. Brig. Field Amb.
Draycott, Capt. C. N., Lond. Sanitary Co.
Errington, Capt. R., Northumb. Field Amb.
Fletcher, Capt. (temp.) J. H., R.A.M.C.
Golding, Capt. J., Lond. Sanitary Co.

Greene, Capt. C. W., Home Counties Field Amb.
Hollis, Capt. H. S., Home Counties Field Amb.
Hunt, Capt. G. H., Lond. Casualty Clearing Stn.
Johnston, Capt. D. M., Home Counties Field Amb.
Keith, Capt. W. B., Home Counties Field Amb.
Lennane, Capt. G. Q., Lond. Sanitary Co.
Lightstone, Capt. H.
Low, Capt. H. B., Northumb. Field Amb.
MacMillan, Capt. J., Lond. Field Amb.
Marrack, Capt. (temp.) J. R., R.A.M.C.
Melvin, Capt. G. S., Highland Field Amb.
Metcalfe, Capt. F., Northumb Field Amb.
Murdoch, Capt. J.
Nuthall, Capt. A. W., S. Midland Casualty Clearing Stn.
Pitt, Capt. W. J. C. B., S. Midland Casualty Clearing Stn.
Scott, Capt. J. A. C.
Smythe, Capt. H. J. D., S. Midland Field Amb.
Tatlow, Capt. R. E. T.
Vick, Capt. R. M., Lond. Field Amb.
Watt, Capt. J. A., Lond. Field Amb.
White, Capt. G., Lond. Sanitary Co.
Wilkin, Capt. H. F.
Williamson, Capt. G. S., S. Midland Field Amb.
Wood, Capt., W. L. R.
Foster, Lt. S. R., N. Midland Field Amb.

British Red Cross Society.

Stewart, Lt.-Col. (temp. Hon.) E., R.A.M.C.

Members of the American, Chicago, and Harvard Units, Attached to Nos. 22 and 23 General Hospitals, Etaples.

Chancellor, Dr. P. S.
Dodd, Dr. W. J.
Faulkner, Dr. W. E.
Kazanjian, Dr. V.
Neff, Dr. J. M.

Canadian Army Medical Corps.

Bridges, Col. J. W.
McLaren, Col. M.
Cameron, Lt.-Col. K.
Nasmith, Lt.-Col. G. G.
Mackinnon, Maj. W. T. M.
Young, Maj. C. A.
Gibson, Capt. G. H. R.
Macdonald, Capt. R. H.
Smith, Capt. S. A., D.S.O.
Hart, Lt. W. M.

Indian Medical Service.

Grayfoot, Col. B. B.
Berry, Lt.-Col. A. E.
Hamilton, Lt.-Col. J. A.
MacNab, Lt.-Col. A. J.
Boulton, Maj. H.
Bradley, Maj. R. J.
Browse, Maj. G.
Cruddas, Maj. H. M.
Fleming, Maj. A. N.
Good, Maj. J.
Hudson, Maj. C., D.S.O.
Jeudwine, Maj. W. W.
Kerans, Maj. G. C. L.
Needham, Maj. R. A.
Shettle, Capt. F. B.
Carmack, Capt. H. S.
Green-Armytage, Capt. V. B.
Middleton-West, Capt. S. H.
Nicholson, Capt. R. B.
Paton, Capt. W. C.
Scott, Capt. J.
Smalley, Capt. J.
Smith, Capt. C. H.
Whitamore, Capt. V. N.
Wood, Capt. C. A.

Indian Subordinate Medical Department.

Bal-Mukand, 991 1st Cl. Sub-Assist. Surg.
Hira-Lal, 1255 1st Cl. Sub-Assist. Surg. P.
Hira Singh, 929 1st Cl. Sub-Assist. Surg., Rai Bahadur.
Jassuda-am, 1286 1st Cl. Sub-Assist. Surg. S.
Kishan Singh, 1046 1st Cl. Sub-Assist. Surg.
McMillan, 1st Cl. Assist. Surg. W. C.
Maine, 1st Cl. Assist. Surg. W. J. S.
Pohlo Ram, 772 1st Cl. Sub-Assist. Surg
Shaikh Hussain Ali, Subadar and 1st Cl. Senior Sub-Assist. Surg.
Bishan Singh, 1143 1st Cl. Sub-Assist. Surg.
Browne, 2nd Cl. Assist. Surg. R. F.
Culpankum Virasami Rajagopal Pillai, 2nd Cl. Sub-Assist. Surg.
Kishan Singh, 1246 2nd Cl. Sub-Assist. Surg.
Pargan Singh, 1280 2nd Cl. Sub-Assist. Surg.
Boilard, 3rd Cl. Assist. Surg. E. H.
Mathurapershad Sarswit, 1360 3rd Cl. Sub-Assist. Surg.
Me-sinier, 3rd Cl. Assist. Surg. E. B.
Rodrigues, 3rd Cl. Assist. Surg J. M.
Browne, 4th Cl. Sub-Assist. Surg. W. A.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war:—

Second Lieutenant A. G. Scott, 2nd Battalion, 3rd Duke of Wellington's Regiment, elder son of Mr. G. H. Scott, of Sheffield.

Corporal A. F. Hudson, 16th Battalion, Canadian Scottish, eldest son of Dr. A. B. Hudson, of British Columbia (late of Cobham, Surrey).

R. T. Wight, Loyal Suffolk Hussars, only son of Dr. T. H. T. Wight, of Harvard.

Lieutenant L. H. White, R.N., H.M.S. *Natal*, second son of Dr. Hale White, of Wimpole-street, London.

Second-Lieutenant C. S. Lee, Royal Engineers, only child of Lieutenant-Colonel W. A. Lee, late I.M.S.

Lieutenant-Commander J. B. Murray, R.N., H.M.S. *Natal*, third son of the late Dr. W. B. Murray, of Tenbury, Worcestershire.

THE CENTRAL MEDICAL WAR COMMITTEE: LORD DERBY'S SCHEME.

The Central Medical War Committee, which has worked out a system of recruiting officers for the R.A.M.C., is at present completing a list of all medical men of military age (that is to say, all of 45 years or under) who have not yet received commissions. It fully recognises the need for taking into consideration local and individual difficulties, and is in communication with the local Medical War Committees who are preparing lists of medical men of military age for each area, classified according to the scheme published in THE LANCET of Dec. 11th, p. 1321. As these local lists are completed a communication will be addressed to each medical practitioner of military age asking him to fill up a form, giving his name, age, qualifications, and other personal particulars; and another form authorising the Central Medical War Committee to forward to the War Office the application for a temporary commission in the Royal Army Medical Corps so soon as in the opinion of that Committee the time has arrived for offering his services. The Committee on its part undertakes to give the applicant at least one month's notice. On receipt of this form of application for a commission the Committee will at once send a certificate of enrolment, stating that the application has been received and is duly registered with the Committee. This form of enrolment is equivalent to attestation under the Derby scheme, and applies only to men who are willing to give their whole time.

The applications for commissions will not be sent into the War Office by the Central Medical War Committee until the circumstances in each case have been fully considered. Thus there will be taken into account the individual's responsibilities with regard to persons dependent upon him and to partners, institutions, or public authorities, while in the general interests of the country the medical needs of each area will be thought of and precautions taken so that the proportion to population of medical men remaining in civil practice may be equalised throughout the country. There are residential areas where the proportion of medical men in civil practice is very much higher than in industrial districts, and it is certain that further calls must be made upon men practising in such areas. The Central Medical War Committee is aware that the conditions under which the public have been accustomed in time of peace to obtain the attendance of medical men cannot continue without modification.

It is not possible to mention any number as the total of medical men who will be required by the army within a stated time; this must depend partly upon the development of military operations, and partly upon the amount of wastage among medical men already serving in the army. The understanding is that when the Army Medical Department needs more medical officers it will state the number required to the Central Medical War Committee; that Committee will then inspect the whole list of enrolled men and will select those who, from the information in the possession of the Local Medical War Committees and the general information as to the whole country in the possession of the Central Medical War Committee, can be withdrawn from civil practice with least disadvantage to the public and to themselves.

The scheme under which doctors are now invited to enrol with the Central Medical War Committee ensures that they will engage under the conditions

which have prevailed since the beginning of the war—that is to say, the commission they promise to accept will be for a year, at the end of which time they will be able to review the position. The Committee points out that if the opportunity is lost and compulsion has to be faced it is possible that the whole medical profession will be converted into a State service, when compulsion on the individual will not be limited in time, but he will be required to serve at least for the duration of the war.

MEASURES TAKEN IN FRANCE FOR PREVENTION OF CHILLED FEET AND FROST-BITE.

Readers of the leading article in our issue of Dec. 11th, 1915, on the subject of trench-foot will be interested in the following official summary of the measures which have been taken in France to prevent this condition:—

1. Chilled feet and frost-bite are, it is stated, caused by: (*a*) Prolonged standing in cold water or mud. (*b*) The continued wearing of wet socks, boots, and puttees.

2. They are brought on much more rapidly when the blood circulation in the feet and legs is interfered with by the use of tight boots, tight puttees, or the wearing of anything calculated to cause constriction of the lower limbs.

3. They can therefore be prevented or diminished by: (*a*) Improvements to trenches leading to dry standing and warmth. (*b*) By reducing the time spent in the trenches as far as the military situation permits. (*c*) By regimental arrangements ensuring that, so far as is possible, men enter the trenches warmly clad in dry socks, boots, trousers, and puttees, and with the skin well rubbed with whale oil or anti-frost-bite grease. (*d*) By provision of warm food in the trenches when possible. (*e*) By movement, when possible, so as to maintain blood circulation. (*f*) By the provision of warmth, shelter, hot food, and facilities for washing the feet and drying wet clothes for men leaving the trenches.

4. In order to minimise the prevalence of chilled feet and frost-bite the following instructions are to be carried out unremittingly and under the strictest supervision:—(*a*) Before entering the trenches feet and legs will be washed and dried, then well rubbed with whale oil or anti-frost-bite grease, and dry socks put on. It is of the utmost importance that whale oil or anti-frost-bite grease should not merely be applied, *but thoroughly rubbed in until the skin is dry.* Unless this precaution is systematically carried out the oil and grease become in a great measure valueless. (*b*) A second pair of dry socks will be carried by each man and, where possible, arrangements will be made for socks to be dried and reissued during each tour of duty in the trenches. (*c*) While in the trenches boots and socks will be taken off from time to time, if circumstances permit, the feet dried, well rubbed, and dry socks put on. (*d*) On no account will hot water be used nor the feet held near a fire. (*e*) Where possible, hot food will be provided during tours of duty in the trenches. (*f*) Where circumstances admit, long gum boots will be put on while the men's feet are dry, before entering wet trenches, in order that men start their tour of duty with dry feet. (*g*) When gum boots are worn it is well to support the socks by some form of fastening, such as a safety pin, to prevent them from working down under the heel. On no account will anything in the form of a garter be worn. (*h*) When conditions are favourable rest posts will be instituted in proximity to the trenches, where men who show signs of suffering from exposure can be promptly attended to.

5. Provision will be made for the washing and drying of feet in reserve billets, for the exchanging of wet socks for dry ones, and, if possible, the sending of the latter to the trenches, and for drying and brushing clothes. Steps will be taken to ensure that men make use of these arrangements.

6. Long gum boots are being issued to the fullest extent of the supply available, and every effort will be made to procure all that are necessary for men holding water-logged trenches. The distribution of these boots depends upon the necessity for their use, and will therefore be made, not according to numerical strength, but according to the nature of the trenches which have to be held.

PROPOSAL FOR A COLLEGE OF NURSING.

We have received from the matron-in-chief of the Joint War Committee of the British Red Cross Society and the Order of St. John of Jerusalem a letter signed by the Hon. Arthur Stanley, chairman of the committee, suggesting the foundation of a College of Nursing. The proposal is the far-reaching one of organising the teaching and examining of candidates for entrance to the nursing profession in the same way as the Conjoint Board has done this for the medical profession and the chartered institutes for other callings. Promoters of the college are to be sought amongst the chairmen and governors of leading hospitals, physicians and surgeons who lecture to nurses, the principals of nurse training schools and of nursing associations, and other persons interested in the education of women. If the proposals meet with general support it is believed that financial assistance can be secured to launch the college in a suitable building.

THE LOSS OF H.M. CRUISER "NATAL."—The explosion on board the *Natal* in harbour on Thursday, Dec. 30th, 1915, led to the regrettable loss of some 300 lives, including those of Staff-Surgeon Alfred O. Hooper, R.N., and Surgeon Douglas W. K. Moody, R.N., recorded in our casualty list. It is a matter for congratulation that Fleet-Surgeon Ernest S. Tuck was amongst the saved.

VACANCIES FOR MEDICAL OFFICERS.—Three medical officers are urgently required for the 2/1st Highland Mounted Brigade now sending drafts of officers and men overseas—one regimental medical officer for the 2/2nd Lovat Scouts, and two for the 2/1st Highland Mountain Brigade Field Ambulance. Full particulars of pay and duties from Captain Mowat, Officer Commanding 2/1st Highland Mounted Brigade Field Ambulance, R.A.M.C., 2, Mount-street, Diss, Norfolk.

EXPERIENCES IN A GERMAN MILITARY HOSPITAL.—Dr. Eloesser, of San Francisco, has been working in a German military hospital for three months, and gives an account of his experiences in the *Journal of the American Medical Association* of Dec. 4th, 1915. His views are very similar to those developed in our surgeons by the war. Dum-dum bullets may perhaps be used, but the ordinary bullet makes precisely similar wounds, and the English bullet is perhaps the worst of all, the French the most humane. Artillery wounds are the most horrible of the horrors of war, worse than any of the cruelties imagined by the torturers of old. They are always infected, and are becoming worse infected as the war goes on and the men's clothing becomes dirtier and the ground about the trenches more of a cemetery. The prophylactic injection of antitetanic serum has extinguished tetanus. All wounds require to be cleaned and disinfected at once; no surgeon would neglect this duty if he could see his cases two days later when inflammation has broken loose and extensive incisions are required to open up and expose to the air the infected tissues of the gas phlegmons. Besides, it is impossible to say when the infection is conquered. It is so ready to break out again. The best splint is one well-fitting and windowed, made of plaster-of-Paris, but many surgeons called up for war have long forgotten how to apply that; besides, there is rarely time. Splints as usually applied are chiefly a balm to the surgeon's conscience. There was no deficiency in the German hospitals in any direction, no stint of absorbent cotton or rubber goods "which one would imagine to be scant during the blockade." Great foresight is credited to the organisations which are training the crippled men to be again useful. They strive to educate each man in his own trade, teaching the one-armed bricklayer mechanical drawing and architecture for example, so that some of the crippled already earn larger wages than before they were wounded, and their former knowledge is a foundation for that being imparted to them. The number of prisoners to be fed in Germany has caused considerable difficulty. In the first place it was difficult to find suitable staffs for the camps, but special courses having been held last June for cooks and stewards, all is now in order. The Government has established a central depôt for stores to diminish cost of purchases, and the diet contains

85 grm. albumin, 40 grm. fat, and 475 grm. of carbohydrates, 2700 calories. Prisoners employed get 10 per cent. more, and those doing hard labour are paid for their work and can buy themselves extras. The cost of the ration to the Government is 52 pfennigs (or 6½*d.*) daily.

THE WELSH GENERAL HOSPITAL.—This hospital, to which we have already referred, is a general hospital of 1040 beds, the personnel of which is being raised by Wales for overseas service. The medical staff includes officers in charge of medical and surgical divisions, an ophthalmologist, pathologist, radiographer, and ear and throat specialist. A dental surgeon with a medical qualification will also be accepted. Appointments are for temporary commissions and for service with the hospital. Officers who already hold temporary commissions or Territorial commissions are not accepted, with this exception, that the officer in charge of the medical and surgical divisions, who should be consultants in their own branches, may be transferred from Territorial units if they can be spared. The hospital is under the command of Lieutenant-Colonel A. W. Sheen, R.A.M.C. (T.F.), and leaves probably some time in February next. Forms of application for posts can be obtained from the honorary secretaries, Welsh Hospitals Offices, 47, Principality Buildings, Cardiff.

WORK OF THE RED CROSS.—Last week we noticed under this heading the joint work of the British Red Cross and the Order of St. John of Jerusalem. We now have before us the third interim report of the Red Cross work of the Indian branch of the St. John Ambulance Association, which took up the rôle of a Red Cross Society in India at the beginning of the war, and its remarkable achievements have called forth the highest praise from the highest authorities. Some five years ago the total assets of the association in India amounted to only a few hundred rupees, while to-day it can boast of having collected the splendid sum of over three and a half lakhs, while it has dispatched Red Cross gifts and material to the value of no less than ten lakhs to the various theatres of war. It has also raised 14 motor ambulances, it has sent a small fleet of motor ambulance boats up the Persian Gulf, it has assisted to equip military war hospitals in India, it has helped the sister Red Cross societies of all the Allies by gifts of material and money, besides establishing a hospital in India for the reception of severely wounded officers and men requiring electrical treatment. This is not an exhaustive list of its activities, but it is sufficient to show the great value of its work. The report, which is signed by the chairman of the executive committee, Surgeon-General Sir Charles Pardey Lukis, I.M.S., is illustrated with pictures showing details of the work of the association.

GERMANY'S PROHIBITION OF EXPORT OF MEDICAL PUBLICATIONS.—A Swiss Correspondent writes: "The *Journal de Genève* contrasts the present attitude of German doctors with that of German mechanical engineers—a comparison greatly in the favour of the latter. Mechanical engineers are making great efforts to invent a really adequate artificial hand. A prize of £2000 has been offered by the Association of German Engineers to the most successful inventor. At a recent meeting of this very numerous association the president declared that he hoped any invention in this direction resulting from the labours of the members would benefit not only Germany and its allies but also their enemies. These humane sentiments are in striking contrast with the spirit which has prompted the prohibition of the exportation of all medical publications. This measure has been adopted in so rigorous a fashion that Swiss doctors can no longer obtain copies of books which have been published for them in Germany. The idea underlying this prohibition is that the enemies of the Fatherland should not profit in the least degree from any progress that may be made in German surgery."

WELSH MEDICAL ORDERLIES.—As the outcome of a conference of religious leaders in North Wales the War Office has given permission for the formation of a Royal Army Medical Corps unit consisting of 240 theological students, young clergymen, and ministers.

KAISER'S CORFU PALACE AS SERBIAN HOSPITAL.—It is stated that the British Government intends to take over the Achilleion, the Emperor William's Palace at Corfu, as a hospital for wounded Serbians.

Medical News.

UNIVERSITY OF OXFORD.—The degree of D.M. has been conferred upon H. T. Evans, Jesus College.

UNIVERSITY OF CAMBRIDGE.—At examinations for Medical and Surgical Degrees held during Michaelmas term, 1915, the following candidates were successful:—

FIRST EXAMINATION (OCTOBER, 1915).

Part I., Chemistry.—G. H. Caiger, Caius; C. B. Clarke, Catharine; B. H. Cole, B.A., H. Selwyn; G. T. Henderson, Caius; C. A. Horder and P. W. Putnam, Emmanuel; J. Russell, Christ's; J. L. Strain, Trinity; and C. H. Whittle, Queens'.

Part II., Physics.—G. F. Abercrombie, F. H. S. Caiger and G. H. Caiger, Caius; C. B. Clarke, Catharine; G. T. Henderson, Caius; C. A. Horder, P. B. Kittel, P. W. Putnam, and W. Smith, Emmanuel; J. V. Sparks, St. John's; J. L. Strain, Trinity; and C. H. Whittle, Queens'.

Part III., Elementary Biology.—F. H. S. Caiger and G. H. Caiger, Caius; C. B. Clarke, Catharine; G. T. Henderson, Caius; F. B. Hobbs, Sidney Sussex; C. A. Horder and P. W. Putnam, Emmanuel; J. V. Sparks, St. John's; and S. D. Sturton, Emmanuel.

FIRST EXAMINATION (DECEMBER, 1915).

Part I., Chemistry.—G. F. Abercrombie and F. H. S. Caiger, Caius; W. R. Carling, Emmanuel; H. A. Crowther, St. John's; N. D. Dunscombe, Downing; F. R. G. Hief, Sidney Sussex; P. B. Kittel, Emmanuel; R. J. Lythgoe, Trinity; E. Miller, B.A., St. John's; D. G. Sharp, Christ's; S. D. Sturton, Emmanuel; W. S. R. Thomas, Queens'; and H. B. Yates, Downing.

Part II., Physics.—A. Barker, Christ's; A. Carling, Corpus Christi; H. A. Crowther, St. John's; N. D. Dunscombe, Downing; G. S. W. Evans, Queens'; F. R. G. Hief and F. B. Hobbs, Sidney Sussex; R. J. Lythgoe, Trinity; E. Miller, B.A., St. John's; R. Y. Paton, Trinity; J. Russell and D. G. Sharp, Christ's; S. D. Sturton, Emmanuel; W. S. R. Thomas, Queens'; A. D. Whitelaw, St. John's; and H. B. Yates, Downing.

Part III., Elementary Biology.—G. F. Abercrombie, Caius; A. Barker, Christ's; W. R. Carling, Emmanuel; G. S. W. Evans, Queens'; F. R. G. Hief, Sidney Sussex; P. B. Kittel, Emmanuel; R. J. Lythgoe, Trinity; E. Miller, St. John's; R. Y. Paton, Trinity; A. D. Porter, Pembroke; A. E. Roche, Magdalene; J. Russell and D. G. Sharp, Christ's; J. L. Strain, Trinity; W. S. R. Thomas, Queens'; M. H. Webb-Peploe, Trinity; C. H. Whittle, Queens'; A. W. Wilson, St. John's; and H. B. Yates, Downing.

SECOND EXAMINATION (OCTOBER, 1915).

Part II., Pharmacology and General Pathology.—D. C. Beaumont, B.A., Christ's; W. L. Berry, Caius; W. T. Beswick, B.A., Trinity Hall; J. M. Bickerton, Pembroke; W. S. Brown, B.A., Caius; P. A. Buxton, B.A., and H. Chadwick, B.A., Trinity; H. Corsi, Pembroke; T. L. Crawhall, B.A., Caius; L. Cunningham, B.A., and C. D. Day, M.A., Downing; H. S. Evans, B.A., Trinity; T. Fernandez, B.A., Catharine; E. A. Fiddian, B.A., Emmanuel; H. D. Gardner, B.A., Trinity; S. V. Goldberg, B.A., Catherine; W. N. Goldschmidt, B.A., Pembroke; F. Gray and G. A. Harrison, Caius; L. B. Hartley, B.A., King's; H. W. H. Holmes, Christ's; H. B. Jackson, M.A., Clare; R. B. P. Lansdown, Pembroke; J. G. Lawn, B.A., Sidney Sussex; P. T. Liang, Caius; G. T. Lipshytz, B.A., Emmanuel; E. E. Llewellyn, B.A., Christ's; E. I. Lloyd, B.A., Trinity; N. J. Macdonald, Pembroke; J. H. E. Moore, E. O. Morrison, B.A., and H. Morrison, Caius; A. Orr-Ewing, B.A., Pembroke; A. H. Pearce, B.A., Clare; A. V. Pegge, B.A., Caius; A. A. Prichard, B.A., Clare; I. M. Rattray, B.A., Caius; H. E. Rhodes, B.A., and S. Riddiough, B.A., King's; F. N. Sidebotham, B.A., Clare; H. G. Taylor, Trinity; D. L. Tucker, Caius; E. B. Verney, Downing; M. D. Vint, B.A., Christ's; A. T. Westlake, St. John's; J. Whittingdale, Downing; M. Wong, St. John's; and R. A. Woodhouse, B.A., Downing.

SECOND EXAMINATION (DECEMBER, 1915).

Part I., Human Anatomy and Physiology.—W. F. Attwater, Pembroke; H. Barbash, St. John's; L. H. Bartram, Trinity; P. F. Bishop, Clare; E. P. Brockman, Caius; H. B. Bullen, B.A., Clare; W. M. Casper, Caius; S. P. Castell, Christ's; C. B. Cohen, Trinity; E. J. Crisp, Sidney Sussex; E. C. Curwen, Caius; R. W. M. Dendy, B.A., Trinity; C. C. R. Downing, Pembroke; C. H. Gunasekara, Clare; A. C. Halliwell, Caius; G. G. Havers, B.A., Downing; A. T. Hawley, Caius; W. M. Heald, T. L. Hillier, and S. C. Ho, B.A., St. John's; J. M. Lawrie, Trinity; J. R. Mitchell, B.A., Clare; P. M. Neighbour, Sidney Sussex; R. A. Olphert, Caius; F. P. N. Parsons, Pembroke; R. H. Reece and R. H. O. B. Robinson, King's; A. T. Spoor, B.A., Emmanuel; H. F. Squire, Caius; W. S. Sykes, Emmanuel; M. S. Thomson, Downing; J. P. Wells, Pembroke; D. E. Wijewardene, B.A., Peterhouse; R. L. Williams, St. John's; D. W. Winnicott and F. G. Wood, B.A., Jesus; and J. M. McC. Wright, B.A., Pembroke.

THIRD EXAMINATION (DECEMBER, 1915).

Part I., Surgery and Midwifery.—G. A. Back, B.A., Caius; S. L. Bhatia, B.A., Peterhouse; H. V. Deakin, B.A., Trinity; A. N. Drury, B.A., Caius; C. Gardiner-Hill, B.A., Pembroke; S. H. M. Johns, B.A., Clare; R. F. Jones, B.A., St. John's; W. N. Leak, B.A., Trinity; W. New, B.A., Downing; S. R. Prall, B.A., Emmanuel; M. K. Robertson, B.A., Trinity; H. W. Scott, B.A., Clare (Surgery only), and G. E. Spicer, B.A., N. S. Tirard, and F. H. Young, B.A., Trinity.

Part II.—G. A. Back, B.A., Caius; A. E. Brown, B.A., Christ's; A. N. Drury, B.A., Caius; C. Gardiner-Hill, B.A., Pembroke; C. H. M. Gimlette, B.A., Caius; H. W. Hales, B.A., Pembroke; R. F. Jones, B.A., St. John's; W. N. Leak, B.A., Trinity; P. K. Liang, B.A., Caius; S. R. Prall, B.A., Emmanuel; R. T. Raine,

B.A., H. Selwyn; J. R. Rees, B.A., King's; W. H. C. Romanis, B.A., Trinity; J. E. Sharp, B.A., and L. W. Shelley, B.A., Caius; F. H. Vey, B.A., Clare; and H. G. E. Williams, B.A., King's.

UNIVERSITY OF SHEFFIELD.—At examinations in the Faculty of Medicine held recently the following candidates were successful:—

Third M.B., Ch.B. Examination.—Frederick G. E. Hill, Elizabeth E. Jenkins, and Robert H. Rae.
Diploma in Public Health.—Beatrice Garvie.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on Dec. 16th, 1915, with Sir Francis H. Champneys in the chair. A letter addressed to the chairman from Mrs. Gow, of Dean's Yard, Westminster, urging the desirability of communicating with the London County Council asking that body not to delegate to the various borough councils its powers and duties under the Registration of Lying-in Homes Act, 1915, was considered. The Board deemed it necessary, in view of the power given to the London County Council by its General Powers Act, 1915, Part IV. (Registration of Lying-in Homes), to delegate its powers and duties to the various borough councils and the possibility of the County Council adopting such a course, to reaffirm its resolution of July 22nd, 1915, which was as follows:—

That the Board strongly approves the view of the chairman expressed in his letter to Dr. W. H. Hamer, of July 16th, 1915,

(i.e., that the Act should be administered by the Council). A letter was considered from the county medical officer of health of Lancashire asking the opinion of the Board on a request made by one of the Lancashire non-county boroughs that the borough health visitor should be allowed to call at houses in which a confinement has recently taken place and at which a certified midwife is in attendance with a view to supervising the midwife at work. The Board directed that the county medical officer of health of Lancashire be informed that the Central Midwives Board is of opinion that, generally speaking, the inspector of midwives is the only person who ought to visit the house of a lying-in patient during the attendance of the midwife, and that any visit paid to a lying-in woman by any other person than the doctor or midwife must be made by the express permission of the patient. A letter was considered from the clerk of the county council of Durham asking the opinion of the Board as to the signing of maternity benefit forms by a registered medical practitioner where the patient has been delivered by an uncertified woman. The Board decided that the clerk of the county council of Durham be informed that in the opinion of the Board the case is one in which a representation should be made by the county council of Durham to the General Medical Council with a view to action being taken in the case, and that he be asked whether the county council of Durham is willing to undertake such representation. A communication was received from the town clerk of Rotherham calling the attention of the Board to a case in which a registered medical practitioner had apparently been in the habit of signing maternity benefit forms in cases where the patient had been delivered on the previous day by an uncertified woman. The Board decided that the town clerk of Rotherham be informed that in the opinion of the Board the case is one in which a representation should be made by the county borough of Rotherham to the General Medical Council with a view to action being taken in the case. A letter was considered from the county medical officer of health of Gloucestershire asking the opinion of the Board as to the powers of a local supervising authority under Rule E. 24 to make an inspection of the place of residence of a midwife when thought necessary. The Board directed that the county medical officer of health of Gloucestershire be informed that under Rule E. 24 the local supervising authority has authority to make an inspection of the midwife's residence to see if it is unsafe, from a sanitary point of view, for the confinements of women within it, or for the confinements of others, from the contamination of the midwife.

Special meetings of the Board were held at Caxton House, Westminster, on Dec. 16th and 17th, 1915, with Sir Francis H. Champneys in the chair. A number of midwives were struck off the roll, the following charges, amongst others, having been brought forward: The midwife being unable to take the pulse of her patients and being unable to make use of a clinical thermometer so as to comply with the requirements of Rule E. 13; a patient suffering from an attack of faintness after the delivery and suffering from persistent headache and thirst and from serious symptoms of illness with a temperature of 102° F., the midwife did not at any time explain that the case was one in which the attendance of a registered medical practitioner was required, as prescribed by Rule E. 19; she did not carry with her when attending patients the antiseptics required by Rule E. 2, and did not keep her register of cases as required by Rule E. 23. A child being stillborn and no registered medical practitioner having been in attendance at the time of birth, the midwife neglected to notify the local supervising authority thereof, as required by Rule E. 21 (1) (c); medical aid having been sought in respect of the child she neglected to notify the local supervising authority thereof, as required by Rule E. 21 (1) (a). The midwife neglecting to disinfect her hands and forearms at a confinement as required by Rule E. 3; not being scrupulously clean in her person and house, as required by Rule E. 1; making false records of the temperature of patients. The midwife did not before delivering the patient wash and swab her external parts in manner prescribed by Rule E. 7; neglecting to cleanse the child's eyelids as soon as the head was born, as required by Rule E. 15, and having administered a drug other than a simple aperient, she neglected to note the occurrence in her register of cases, as required by Rule E. 18. A child suffering from inflammation of, and discharge from, the eyes and continuing so to suffer on the date of the midwife's last visit, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, as prescribed by Rule E. 20 (5); she discontinued her attendance at a time when the condition of the child was not satisfactory—viz., when it was suffering from discharge from the eyes—and advised the mother of the child to take steps to prevent the condition of the child from becoming known to the officials of the local supervising authority. A midwife not taking with her to a confinement a bag or basket for her appliances furnished with a removable lining which can be disinfected, as required by Rule E. 2.

TOXIC JAUNDICE AS A NOTIFIABLE DISEASE.—Last week we published an account of a fatal case of "dope" poisoning associated with jaundice. Dr. W. E. Lee stated there that the composition of the dope was acetate of cellulose or celluloid dissolved in tetrachlorethane, with amyl alcohol and benzene. The Home Secretary has now issued an Order making cases of toxic jaundice occurring in a factory or workshop—"that is, jaundice due to tetrachlorethane or nitro- or amido- derivatives of benzene or other poisonous substance"—notifiable under the Factory and Workshops Act. The Order came into force on Jan. 1st, 1916.

UNIVERSITY OF EDINBURGH.—During the year just brought to a close the total number of matriculated students (including 487 women—59 under last year's number) was 1853, being 676 fewer than the total for 1914, and 1408 fewer than the number for 1913. Of these, 807 (including 11 women) were enrolled in the Faculty of Medicine (a decrease of 218). Of the students of medicine, 382, or over 47 per cent., belonged to Scotland; 122, or over 15 per cent., were from England and Wales; 30 from Ireland; 80 from India; 193, or nearly 24 per cent., from British Colonies and Dependencies; and 26 from foreign countries. The number of women attending extra-academical lectures, with a view to graduation in medicine in the University, was 138 (an increase of 44 on the number for 1914). The University roll of war service—embracing members of the staff, graduates, and students, past and present—which a year ago contained about 1700 names, has now reached a total of nearly 4000, to which should be added about 400 who are members of the Officers Training Corps. The University authorities have renewed, with modifications, various concessions made last year to students on service; and a number of scholarships, &c., which would, in ordinary course, have been tenable or open for competition this session, have been suspended. The following medical degrees were conferred during 1915: Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), 158; Doctor of Medicine (M.D.), 21. The total annual value of the University fellowships, bursaries, and prizes now amounts to about £20,305, of which the Faculty of Medicine claims £5365. Early in the year the vacancy occasioned by the retirement of Professor John Wyllie was filled by the appointment to the

chair of Medicine of Professor Lovell Gulland. Dr. A. M. Drennan, formerly Lecturer in Practical Pathology, has been appointed Professor of Pathology in the University of Otago, New Zealand. Bequests of the James Cropper Scholarship Fund and the Waldie Griffith Scholarship Fund, for the medical education of women in Edinburgh, have been handed over to be administered by the University authorities. The balance of the funds left over on the winding up of the Scottish Association for the Medical Education of Women has been given to the University Court for the foundation of an annual prize for a woman student qualifying in medicine.

DR. ANDREW DUNLOP.—By the death of Dr. Andrew Dunlop, at the age of 73, which occurred at St. Heliers on Dec. 30th last, the profession in Jersey has lost its doyen. Dr. Dunlop had of late been in failing health, and had recently suffered from heart trouble, but he had continued actively at work almost to the last, and the end—from cardiac failure—came rather suddenly. Dr. Dunlop's professional career in Jersey began in 1868, and he soon acquired an extensive general practice. He held several honorary positions and appointments in connexion with the Jersey General Dispensary and other institutions, to which he devoted much time and attention. He was one of the original founders of the Jersey Medical Society and for some years its president. His medical contributions were accurate and painstaking: an article on Rupture of the Heart appearing in 1866 (*Edinburgh Medical Journal*) may be specially mentioned. In addition he was an enthusiastic geologist, and a writer on the subject, contributing frequently to the Société Jersiaise. Dr. Dunlop leaves a widow, a married daughter, and two sons, having lost two sons in the South African War and three sons in the present war.

HEALTH OF BELFAST.—It is satisfactory to note that while in 1914 the death-rate from all causes was 18·8 per 1000, the same rate, based on the returns for the 50 weeks ending Dec. 18th, 1915, is announced as 17·7. In 1914 there were 51 notifications of typhus, with 12 deaths; not a case of this zymotic has been reported in 1915. The estimated number of scarlet fever notifications for 1915 is 1992, against 2317 in 1914, and the notifications of diphtheria have fallen from 281 to 171. Cerebro-spinal fever cases, on the other hand, have advanced from 14 in 1914 to 64 in 1915. The following tabular comparison is interesting:—

Deaths from—	Total in 1914.	Estimated total in 1915.
Zymotic disease in general	1170	691
Typhoid fever	26	9
Measles	205	167
Scarlet fever	170	105
Whooping-cough	205	155
Diphtheria	31	28
Diarrhœa	357	245
Phthisis	836	819
Chest diseases (including phthisis)	2466	2439
Death-rate per 1000 of population from zymotic disease	2·7	1·7
Total infantile death-rate per 1000	143	136

With reference to scarlet fever, the medical officer of health of Belfast believes that it is the delay in the diagnosis and notification of the first case until two or more of the family have become infected which causes the epidemic to continue. He is a believer in the utility of hospital treatment for scarlet fever, and thinks that if cases were nursed at home the epidemic would be even more prevalent than it is.

Mr. John Howard, a well-known Brighton philanthropist, figures among the recipients of New Year's honours conferred by the King. A knighthood has been bestowed upon him. His generosity has been boundless in all sorts of charitable causes, the most recent being his gift of £30,000 for establishing 24 cottage homes for trained nurses incapacitated through ill-health or advancing years. These homes, as already recorded in THE LANCET, are to be a memorial to Nurse Cavell. Other benefactions have been the founding of the Howard Charity, which provides pensions varying from 2*s.* 6*d.* to 8*s.* a week to scores of deserving people, and the building and endowment of the Howard Convalescent Home at a cost of £40,000. This home has been occupied by convalescent military and naval men ever since it was opened in September, 1914, Sir John Howard having placed it at the disposal of Lord Kitchener free of charge.

THE SS. "PERSIA."—The names of a medical man and a medical woman appear in the list of those on board the ill-fated *Persia*, and unfortunately not among the rescued: Dr. William Everett, who was travelling as ship's surgeon, and Dr. Elizabeth Stephens Impey, who was on her way to Lahore to take charge of the Lady Dufferin Hospital for Women.

THE LATE DR. C. H. FOX.—Charles Henry Fox, M.D. St. And., F.R.C.P. Edin., M.R.C.S., died at his residence in Edinburgh on Christmas Day, in his seventy-ninth year. He received his medical education at St. George's Hospital and Edinburgh University, graduating M.D. of St. Andrews in 1861, after having taken the M.R.C.S. in 1859. In 1900 he was admitted F.R.C.P. Edin. Dr. Fox was formerly physician to the Brislington House Private Lunatic Asylum, owned by himself and his half-brother, Dr. Bonville Fox. Retiring in 1894, he spent the remainder of his life in Edinburgh.

COMPLETION OF THE WESTERN INFIRMARY, GLASGOW.—At a meeting held on Dec. 23rd, 1915, in connexion with the Glasgow Western Infirmary, the new buildings were formally opened. The chairman, Sir Matthew Arthur, referred to the handsome donation of £16,000 from the Davis trustees, which had enabled the management to complete the building plan of the admission department, which was the groundwork of the scheme, and to the generous gift of their friend and fellow manager, Mr. William Robertson, who had already supplied the large ward of the new wing at a cost of £8000 and had now given £3500 for the equipment of the new operating theatre. In the course of the proceedings the managers made an urgent appeal for financial support of the work of the institution, Colonel Roxburgh pointing out that the only alternative to public generosity was State aid.

Mr. C. Welch, a Somerset landowner, who recently died leaving an estate valued at £24,155, bequeathed the residue of his property to the University of Oxford with certain conditions, failing which the property reverted to six London hospitals, one being St. George's Hospital, but, said the testator, "no hospital is to be chosen by the trustees where vivisection is disallowed or discountenanced, anti-vivisectionists being enemies of the human race."

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DAVIES, A. L., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Bala District of the county of Merioneth.

FIELD, F. A., M.D. Lond., has been appointed Deputy Medical Officer of Health of the Failsworth Urban District Council.

FULTON, JANE M., M.B., B.S. R.U.I., has been appointed Assistant Medical Officer at the Barming Heath Lunatic Asylum, Maidstone.

GRAVES, T. C., M.B., B.S. Lond., has been appointed Medical Superintendent of the Hereford County and City Asylum.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £180 per annum, with board and laundry.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House Surgeon. Salary £200 per annum, with board and residence.

BRISTOL ROYAL INFIRMARY.—House Physicians and House Surgeons. Salary at rate of £120 per annum, with board, apartments, and laundry.

BURY INFIRMARY.—Senior House Surgeon. Salary £250 per annum, with board, residence, and washing. Also Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—House Physician and Casualty Officer. Salary £200 per annum, with board, residence, &c.

GRAVESEND HOSPITAL.—House Surgeon. Liberal salary, with board, residence, and washing.

HEREFORD, HEREFORDSHIRE GENERAL HOSPITAL.—House Surgeon, unmarried, for six months. Salary £250 per annum, with board, residence, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.

KING'S LYNN, 2/2ND SOUTH MIDLAND MOUNTED BRIGADE FIELD AMBULANCE.—Medical Officers.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—Female House Surgeon. Salary £120 per annum, with apartments and board.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Female Resident Surgeon. Salary £120 per annum, with board, apartments, and laundry.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—Female Pathologist. Salary £125 per annum.

OLDHAM COUNTY BOROUGH.—Assistant Schools Medical Officer. Salary £325 per annum.

OXFORD, 3/2ND SOUTH MIDLAND MOUNTED BRIGADE FIELD AMBULANCE (T.F.).—Medical Officer.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician. Salary £240 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—House Surgeon for six months. Salary as arranged.

ST. MARYLEBONE INFIRMARY, St. Charles-square, N. Kensington.—Two Temporary Assistant Medical Officers.

ST. PANCRAS INFIRMARY, London.—Senior Assistant Medical Superintendent of the South Infirmary, Pancras-road, N.W., and Senior Assistant Medical Officer of House adjacent. Salary at rate of £225 per annum, with board, apartments, and washing.

SHEFFIELD ROYAL INFIRMARY.—Resident Surgical Officer. Salary £140 per annum, with board, residence, &c.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Clinical Assistants to Out-patients.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female House Surgeon. Salary £150 per annum, with board, apartments, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Senior Student as Assistant House Surgeon. Salary as arranged, with board, rooms, and laundry.

WORCESTER COUNTY AND CITY ASYLUM, Powick.—Junior Assistant Medical Officer. Salary £250 per annum.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Baldock, in the county of Hertford.

Births, Marriages, and Deaths.

BIRTHS.

GRAY.—On Dec. 26th, 1915, at Alma House, Exmouth, the wife of Lieutenant Robin Gray, R.A.M.C., of Stone House, Chipping Sodbury, of a daughter.

NABARRO.—On Dec. 21st, 1915, at 117, Dartmouth-road, N.W., the wife (née Florence Nora Webster) of David Nabarro, M.D. Lond., of a son.

THWAITES.—On Dec. 30th, 1915, at St. John's Park, Blackheath, the wife of Captain H. Thwaites, R.A.M.C., British Expeditionary Force, of a son.

MARRIAGES.

BOURKE—O'CONNOR.—On Dec. 30th, 1915, at St. Dominic's Church, Haverstock-hill, N.W., Lieutenant Ulick J. Bourke, R.A.M.C., to Agnes Mary, daughter of the late J. J. O'Connor and Mrs. O'Connor.

MASON—EASTMAN.—On Jan. 1st, Arthur F. Mason, R.A.M.C., to Elsie Marion, eldest daughter of Henry Eastman, of Fernlea, Southampton.

POWELL—COLE.—On Dec. 29th, 1915, at Glencraig Church, Craigavad, Ievan Herbert Powell, B.A., M.B. Dub., B.Ch. T.C.D., to Kathleen Harrietta Jacquetta, elder daughter of Lieutenant T. Willoughby Cole, R.A.M.C. (T.).

DEATHS.

DREW.—On Dec. 27th, 1915, at Montrose, Battledown, Cheltenham, peacefully, after a long illness, Joseph Drew, M.B. Lond., M.R.C.S., aged 89 years.

DUNLOP.—On Dec. 30th, 1915, at Belgrave House, St. Hellier, Jersey, Andrew Dunlop, M.D. Edin., D.P.H. Camb., F.G.S., aged 73 years.

FAGGE.—On Jan. 2nd, at Effingham-road, Lee, Kent, Frederick Thomas Fagge, M.R.C.S., L.R.C.P. Lond., aged 76 years.

JOHNSON.—On Nov. 29th, 1915, at Anzac, Major Frederick Miller Johnson, A.M.C., late of Melbourne, Australia, M.D. Edin., C.M. Lond., grand-nephew of the late Sir William Gull, Bart.

MILLER.—On Dec. 29th, 1915, killed in action, in France, Albert Guy Miller, Captain, R.A.M.C., aged 31 years.

ROBERTSON.—On Jan. 2nd, Sir George Scott Robertson, K.C.S.I., M.P.

TANDY.—On Dec. 30th, 1915, at the Red Cross Hospital, Finsbury-square, Barré Latter Tandy, L.R.C.S. Irel., L.R.C.P. Edin., aged 70 years.

THOMPSON.—On Jan. 1st, in France, Lieutenant W. Frank Thompson, R.A.M.C., of the Leys School, Cambridge, and St. Bartholomew's Hospital, dearly loved elder son of Mr. and Mrs. W. W. Thompson, of 3, The Avenue, Brondesbury, N.W., aged 28 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

ELIMINATING THE TRAMP.

IN these grim days of war much domestic legislation is put on one side, but the possibility of eliminating the tramp from the wayside does not seem to be out of the question if some figures just to hand can be taken as any criterion. The success of the West Sussex vagrancy scheme is indeed remarkable. It has now been in operation nine years, and its three great principles are: (1) Assistance for the genuine workman in search of employment; (2) putting down the number of professional beggars and habitual vagrants; and (3) the information of the general public, who are helped to see that there is no necessity for the indiscriminate giving of alms to wayfarers.

In 1906, the year before the scheme was in operation, no fewer than 19,599 vagrants were relieved at the workhouses of eight unions in West Sussex in twelve months. This huge figure appreciably declined when the vagrancy scheme operated and for the year 1915 was only 5817, or a decrease of 13,782 in nine years. There has been a general decrease in the number of vagrants relieved throughout the United Kingdom, but the West Sussex results have exceeded all expectations. The cheapness of the system is not the least of its recommendations. The cost of the food given to the vagrants relieved during the year just ended was only £33 16*s.* 6*d.*, a little more than usual owing to the Local Government Board adding to the dietary and to the increased cost of food. Even tramps of military age have been met with in West Sussex, and the attention of the Government authorities has been called to them in order that some steps may be taken to apply the National Registration to such men.

TRACING PAPER.

To the Editor of THE LANCET.

SIR,—As medical men often use tracing paper for diagrams, charts, &c., they may like to know that in default of the usual tracing paper ordinary writing paper and scribbling paper may be quickly rendered transparent by pouring a small quantity of moderately viscid liquid paraffin B.P. on the paper and gently rubbing it in with the finger. It is quickly absorbed and soon dries. The drying may be accelerated by placing between blotting or other absorbent paper. It bears ink and pencil marks well. If it is desired to bring the transparent paper back to its pristine opaque condition it can be easily accomplished by placing it in a bottle with a little petrol and shaking it for two or three minutes. The paraffin dries quicker than the castor oil which used to be employed for rendering paper negatives transparent for photographic reproduction.

I am, Sir, yours faithfully,

Jan. 4th, 1916. W. F.

"THE TEETHING FALLACY."

W. M. McD. writes us at length on "The Influence of the Teething Fallacy as a Factor of Infantile Mortality and the Responsibility of the Medical Profession in the matter." He considers that the firm and unquestioned belief among the laity of all classes and among a great part of the medical profession that "baby must certainly be more or less ill whenever he is cutting a tooth" has led even among the best-intentioned mothers to an enormous amount of neglect of the first symptoms of illness in infants, and that in this way thousands of infant lives are sacrificed to the fetish of teething. In 19 years of general practice he has never come across any illness in an infant which could not satisfactorily be explained on other grounds than teething. The subject is one of perennial interest and we deal with it in another column.

BICENTENARY OF THE FIRM OF ALLEN AND HANBURYS, LIMITED.

ON Saturday, Dec. 18th, 1915, the bicentenary of this firm was commemorated by the presentation of an oil portrait painting to Mr. F. J. Hanbury, vice-chairman of the company, and a cabinet of silver and a silver centre-piece to Mr. W. R. Dodd, one of the directors. In view of the serious times through which the nation is passing it was decided to make these presentations privately, and the gathering was strictly confined to subscribers. The celebration of the 200th anniversary of a great commercial business is a matter of national interest, and we offer our congratulations to this venerable and distinguished firm of British manufacturers.

HEREDITY AS A FACTOR IN ALCOHOLIC DEGENERATION.

THE Temperance Collegiate Association offers two prizes of 10 and 5 guineas respectively for the best essays on this subject sent in by Sept. 30th next. Conditions may be obtained from the Secretary of the Temperance Collegiate Association, Strathblane, Alexandra Park, Nottingham. In this connexion the Science and Education Committee of the National Temperance League is willing to consider applications from university and hospital students in physics and medicine for financial assistance in carrying on research or in making investigations. Applications should be addressed to the Secretary of the National Temperance League, Paternoster House, London, E.C.

HAZELL'S ANNUAL, 1916.

THE war has no doubt seriously interfered with the compilation of annual books of reference, but Hazell's appears betimes. It is now in its thirty-first year of issue, and under the editorship of Mr. T. A. Ingram, M.A., LL.D., maintains its reputation for giving the most recent and authoritative information concerning the British Empire, the nations of the world, and the important topics of the day. The vast amount of information contained between the covers of this annual is indicated by the 10,000 entries of its excellent index. Ample space is devoted to matters pertaining to the war, the communications from a naval officer forming a specially interesting chapter. The new taxation and its effects receive considerable attention, and there are tables showing the rates of income-tax payable on various incomes. Messrs. Hazell, Watson, and Viney, Limited, of 52, Long Acre, London, W.C., are the publishers, and the price of the annual is 3*s.* 6*d.*

COCKENZIE FISHERMEN AND THE RED CROSS.

ON the return of the Cockenzie fishing boats, after a successful fishing at Yarmouth, Colonel Caddell, V.C., C.B., made an appeal on behalf of the Red Cross to the fishermen who had been there. As a result, £23 7*s.* 6*d.* have been subscribed by 56 of the fishermen of the nine crews engaged—a generous response considering that each boat has already subscribed between £3 and £4 to the Red Cross when at Yarmouth.

TWO NURSING WAR DIARIES.

MANY of the nurses at present in France send letters home to their friends, which are read with interest by their immediate circle. The author of a "Diary of a Nursing Sister on the Western Front, 1914–1915" (William Blackwood and Sons. Pp. 300. Price 5*s.* net) has been more ambitious in wishing to submit her daily jottings to a wider circle. She discourses pleasantly enough of life on an ambulance train and with a field ambulance, and has an appropriate title for each section of her diary and a poem for each chapter. Nurses who have more hum-drum duties at home may be glad to live the romance of war in these pages.——Miss Dorothy Cator writes more seriously of what she has learned "In a French Military Hospital" (Longmans, Green, and Co. Pp. 99. Price 2*s.* 6*d.* net), and the reader should be warned that the author has been "disappointed and disillusioned at every turn." She tells us that the French attitude to truth is, of course, different from the English one, and that any lie which helps to get through life gracefully is more than permissible, if only it is told well enough not to be found out; that Frenchmen have much to learn from us in the way they treat their women, and so forth. With a more sympathetic eye the author would have seen more, and more truly.

BURBERRYS' SALE.

Messrs. Burberrys, of the Haymarket, London, are holding their annual sale during the month of January, when, in accordance with their custom, they will sell at half the usual prices all the stock remaining on their hands from the previous year. The name of Burberrys, especially for weather-proof clothes, is well known amongst medical men, and some of our readers may be glad to replace a garment at a reduced cost. Messrs. Burberrys will send a catalogue on application.

Recruit.—1. Any previous overcrowding was local. There were many localities undermanned. 2. Many practitioners have been set free for the reasons given by our correspondent, and to ascertain the number of men still available is one of the tasks now being worked at by the Central Medical War Committee. 3. We think our correspondent might have received some credit for his previous experience.

J. P.—We have had a favourable account of the institution.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

HUNTERIAN SOCIETY, 1, Wimpole-street, W.

WEDNESDAY.—9 P.M., Hunterian Society Lecture:—Mr. T. H. Openshaw: Amputations, their Prevention and After-treatment.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.

FRIDAY.—8 P.M., Special Clinical Evening.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Addison: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Addison: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. E. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham): Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. C. H. Hayton). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. C. H. Hayton). Children Out-patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P. Brooks); Skin Out-patients (Dr. H. W. Barber). 5.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1915 were given in THE LANCET of Dec. 25th, 1915.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 5th, 1916.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Dec. 30	29·770	S.W.	...	63	53	46	46	46	Cloudy
,, 31	29·610	S.W.	...	55	53	46	49	52	Cloudy
Jan. 1	29·620	S.W.	0·17	67	57	50	51	53	Raining
,, 2	30·050	S.	0·19	55	55	47	49	50	Overcast
,, 3	30·040	S.W.	0·30	77	54	47	47	50	Cloudy
,, 4	30·120	S.W.	...	60	55	47	49	50	Overcast
,, 5	30·220	S.W.	0·20	56	50	45	44	46	Fine

The following magazines, journals, &c., have been received:—Journal of Physiology, Journal of the Royal Sanitary Institute, Practitioner, Journal of Comparative Pathology and Therapeutics, British Dental Journal, Caledonian Medical Journal, Annali di Medicina Navale e Coloniale, &c.

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W.—Mr. C. H. Whiteford, Plymouth; Mr. D. P. D. Wilkie, Portsmouth; Mr. Owen Williams, Burry Port; West Sussex County Council, Worthing, Clerk to the; Lieutenant H. B. Wilkinson, R.A.M.C., Devonport; Messrs. J. Wright and Sons, Bristol; Mr. S. H. White, Cambridge; Mr. G. A. Wright, Sidmouth; Dr. T. Wholey, Pevensey; W. S. D.; Dr. J. F. Ward, Stockport; Dr. J. A. Wilson, Warrington; Mr. H. B. Weir, Lond.; Lieutenant T. A. Watson, R.A.M.C., France; Mr. C. P. Weekes, Southampton; Captain S. Wright, R.A.M.C., Belfast; Dr. P. J. Walsh, Midleton; Mr. R. L. Wason, Burwell; Mr. A. Wilson, Lond.; Messrs. W. J. Wilcox and Co., Lond.; Mr. R. E. H. Woodforde, Ashwell; Dr. H. Watt, Hawes; Dr. T. D. Webster, Lond.; Western General Dispensary, Lond., Secretary of; Mr. C. F. Weeks, Liverpool; Dr. E. C. Wilford, Tzelintsing; Staff-Surgeon R. J. Willan, R.N., M.V.O., Lond.; Dr. F. J. Wollacott, Lond.; West Kent General Hospital, Maidstone, Secretary of; Captain J. R. H. Ward, Lond.